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VOL. XVII. NO. 1.

JAN. 1, 1889.

PEACE ON EARTH • GOD WILL FORTIFY THE
FAITHFUL



CLEANING
IN

BEE CULTURE

DEVOTED
TO



GLEANINGS IN BEE CULTURE.

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions or more, 20 per cent; 24 insertions or more, 25 per cent.

On 48 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, or more, 25 per cent; 24 insertions or more, 33½ per cent.

On 96 lines (whole column) and upward, 1 insertion, 10 per cent; 3 insertions, 15 per cent; 6 insertions, 20 per cent; 9 insertions, 25 per cent; 12 insertions, or more, 33½ per cent; 24 insertions or more, 40 per cent.

On 192 lines (whole page), 1 insertion, 15 per cent; 3 insertions, 20 per cent; 6 insertions, 25 per cent; 9 insertions, 30 per cent; 12 insertions or more, 40 per cent; 24 insertions or more, 50 per cent.

No additional discount for electrotype advertisements.

A. I. Root.

CLUBBING LIST.

We will send GLEANINGS—

the American Bee-Journal, W'y	(\$1.00)	\$1.75
the Bee-keepers' Magazine,	(50)	1.45
the Canadian Bee Journal, W'y	(1.00)	1.75
the Bee Hive,	(30)	1.25
the Bee-keepers' Review,	(50)	1.45
the British Bee-Journal,	(2.62)	3.25
American Apiculturist,	(\$1.00)	1.75
the above journals,		6.40

Agriculturist,	(\$1.50)	2.25
En,	(2.00)	2.60
	(1.50)	2.35
	(2.00)	2.90
	(50)	1.25
	(3.20)	3.50
	(1.00)	1.90
	(1.00)	1.75
	(50)	2.25
		2.25
		75

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. 1st if wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Col. Co., Pa.	1tfd89
*Paul L. Viallon, Bayou Goula, La.	1tfd89
*S. F. Newman, Norwalk, Huron Co., O.	1tfd89
*D. G. Edmiston, Adrian, Len. Co., Mich.	1tfd89
*Jos. Byrne, Ward's Creek, East Baton Rouge Par., La.	1tfd89
*E. Burke, Vincennes, Knox Co., Ind.	5-3-89
C. C. Vaughn, Columbia, Tenn.	2tfd88
J. W. Winder, New Orleans, La.	7tfd88
Wm. L. Ashe, Edwardsville, Mad. Co., Ill.	1tfd88

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
P. L. Viallon, Bayou Goula, Iberville Par., La.	1tfd89
C. W. Costellow, Waterboro, York Co., Me.	1tfd
R. B. Leahy, Higginsville, Lat. Co., Mo.	2tfd88
J. M. Jenkins, Wetumpka, Ala.	3tfd
F. A. Snell, Milledgeville, Carroll Co., Ill.	4-5-89

America—Established in 1861.

JOURNAL

GLEANINGS IN BEE CULTURE.

Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, *postpaid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them *for sale*, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I *especially* approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

- | | |
|--|------|
| 8 Bible, <i>good print</i> , neatly bound | 25 |
| 10 Bunyan's Pilgrim's Progress** | 35 |
| 6 First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50c. Two copies will be sold for 75 cents. Postage six cents. | |
| 5 Harmony of the Gospels..... | 35 |
| 3 John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon* | 10 |
| 1 Moody and Sankey's Gospel Hymns, words only, No. 1., paper..... | 05 |
| 5 Same, Nos. 1., II., III., and IV., combined, words only, board | 20 |
| 10 Same, words and music, board..... | 75 |
| 3 New Testament in pretty flexible covers..... | 05 |
| 5 New Testament, new version, paper cover | 10 |
| 5 Robinson Crusoe, paper cover | 20 |
| 15 Story of the Bible**..... | 1 00 |
| A large book of 700 pages, and 274 illustrations. Will be read by almost every child. | |
| 5 The Christian's Secret of a Happy Life** | 25 |
| 10 Same in cloth binding | 50 |
| 5 "The Life of Trust," by Geo. Muller** | 1 25 |
| 1 Ten Nights in a Bar Room, by T. S. Arthur* | 03 |

BOOKS ESPECIALLY FOR BEE-KEEPERS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well, by the amount required for postage on each.

- | | |
|---|-------------------------|
| Postage.] | [Price without postage. |
| 12 A B C of Bee Culture** Paper..... | 88 |
| 15 A B C of Bee Culture** Cloth..... | 1 10 |
| 5 A Year Among the Bees, by C. C. Miller ** | 70 |
| 14 Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.**§..... | 2 36 |
| 21 Same, Vol. II.**§..... | 2 79 |
| or, \$5.25 for the two, postpaid. | |
| 1 Bees and Honey, by T. G. Newman | 1 00 |
| 10 Cook's New Manual ** Cloth | 1 15 |
| 2 Dzierzon Theory**..... | 10 |
| 1 Foul Brood; Its management and cure; D. A. Jones**..... | 09 |
| 1 Honey as Food and Medicine | 5 |
| 10 Langstroth on the Hive and Honey-Bee*** | 1 90 |
| 10 Quinby's New Bee-Keeping** | 1 40 |
| 10 Queen-Rearing, by H. Alley* | 1 00 |
| 4 Success in Bee Culture, by James Heddon* | 46 |
| The Production of Comb Honey, by W. Z. Hutchinson** | |
| | 25 |
| The Apiary; or, Bees, Bee-Hives, and Bee Culture, by Geo. Neighbour & Sons, England*§ | |
| | 1 75 |
| British Bee-keeper's Guide - Book, by Thos. Wm. Cowan, Esq., England*§..... | |
| | 40 |
| 3 Merrybarks and His Neighbor, by A. I. Root | 25 |

MISCELLANEOUS HAND-BOOKS.

- | | |
|--|------|
| 3 A B C of Potato Culture, Terry**..... | 35 |
| This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations. | |
| 5 An Egg-Farm, Stoddard**..... | 45 |
| 5 Barn Plans and Out-Buildings*..... | 1 50 |
| 5 Cranberry Culture, White's..... | 1 25 |
| 5 Canary Birds; paper, 50c; cloth* | 75 |
| 5 Draining for Profit and Health, Warring..... | 1 50 |
| 5 Eclectic Manual of Phonography; Pitman's System; cloth | 50 |
| 10 Farming For Boys* | 1 15 |
| This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening. | |

- | | |
|---|------|
| 6 Fuller's Practical Forestry* | 1 40 |
| 10 Fuller's Grape Culturist**..... | 1 40 |
| 7 Farm, Gardening, and Seed-Growing, by Francis Brill** | 90 |

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

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|---|------|
| 10 Gardening For Pleasure, Henderson* | 1 40 |
| While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 216 pages and 134 illustrations. | |
| 12 Gardening for Profit,** New Edition | 1 85 |

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

- | | |
|---|------|
| 10 Garden and Farm Topics, Henderson**..... | 75 |
| 1 Gardening for Young and Old, Harris** | 1 25 |

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as to old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

- | | |
|--|------|
| 5 Gray's School and Field Book of Botany... .. | 1 80 |
| 5 Gregory on Cabbages; paper*..... | 25 |
| 5 Gregory on Squashes; paper*..... | 25 |
| 5 Gregory on Onions; paper*..... | 25 |

The above three books, by our friend Gregory, are almost worth their weight in gold. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business. I have read all three of them several times over, and I expect to read them perhaps several times again.

- | | |
|--|------|
| 10 Household Conveniences..... | 1 40 |
| 2 How to Propagate and Grow Fruit, Green* | 25 |
| 5 How to Make Candy**..... | 45 |
| 10 How to Keep Store*..... | 1 00 |
| 10 Irrigation for the Farm, Garden, and Orchard, Stewart*..... | 1 40 |

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

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|---|----|
| 3 Maple Sugar and the Sugar-Bush,** | 35 |
|---|----|

By Prof. A. J. Cook. This was written in the spring of 1887, at my request. As the author has, perhaps, one of the finest sugar-campes in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest sugar and maple syrup, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

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|--|------|
| 10 Money in The Garden, Quinn*..... | 1 40 |
| 1 Poultry for Pleasure and Profit**..... | 10 |
| 11 Practical Floriculture, Henderson*..... | 1 35 |
| 5 Peach Culture, Fulton's..... | 1 50 |
| 10 Profits in Poultry | 90 |
| 2 Purdy's Small-Fruit Instructor*..... | 15 |
| 2 Silk and the Silkworm..... | 10 |
| 10 Small-Fruit Culturist, Fuller*..... | 1 40 |
| 3 Strawberry Culturist, Fuller*..... | 15 |
| 10 Success in Market-Gardening..... | 90 |

This is new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

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|----------------------------|------|
| 10 Talks on Manures..... | 1 90 |
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This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the writer is considered by an able writer. It contains 366 pages.

- | | |
|---|------|
| 2 Treatise on the Horse and his Diseases..... | 10 |
| 10 The New Agriculture, or the Waters Led Captive | 1 00 |

3 | Winter Care of Horses and Cattle..... 40
This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages, and 4 cuts.

- | | |
|--|----|
| 8 What to Do, and How to be Happy While Doing It, by A. I. Root..... | 50 |
| 3 Wood's Common Objects of the Microscope**..... | 47 |

Address your orders to

A. I. ROOT, Medina, Ohio.

GLEANINGS IN BEE CULTURE.

DISCOUNTS

Will be allowed as usual during the Fall and Winter Months.

PRICES QUOTED ON APPLICATION.

SUPERIOR WORKMANSHIP AND MATERIAL.

SHALL BE PLEASED TO MAKE A FULL LIST OF GOODS
WANTED. CORRESPONDENCE SOLICITED.

A full line of BEE-KEEPERS' SUPPLIES manufactured by
W. T. FALCONER, - - - Jamestown, N. Y.

In responding to this advertisement mention GLEANINGS.

NEW YORK.

FOREIGN ORDERS SOLICITED.

NEW JERSEY.



EASTERN * DEPOT

(Bees.) -FOR- (Queens.)

EVERYTHING USED BY BEE-KEEPERS.

EXCLUSIVE MANUFACTURER OF THE
STANLEY AUTOMATIC HONEY-EXTRACTOR.
Dadant's Foundation, Wholesale and Retail.
WHITE POPLAR OR BASSWOOD SECTIONS.
One-Piece, Dovetail, or to Nail, Any Quantity, Any Size.



MASS.

COMPLETE MACHINERY—FINEST WORK.

Send for Handsome Illustrated Catalogue, Free.

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.

CONN.

In responding to this advertisement mention GLEANINGS.

FOUNDATION.

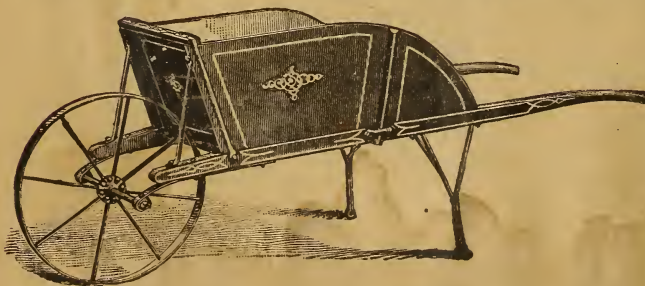
We manufacture the best foundation, and after it is drawn out by the bees it is perfectly white. Made from selected wax. All orders filled promptly (in the season) or money returned by next mail.

Address for prices, etc.,
1 tfdb

F. A. SALISBURY, Syracuse, N. Y.

In responding to this advertisement mention GLEANINGS.

OUR DAISY WHEELBARROW.



OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

The springs are oil-tempered, with adjustable bearings, so the wheel will always run free. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only \$4.00. The larger size is \$4.25. They can be sent either by freight or express. It is only five minutes' work to put one together. We have sold over 200 of these barrows in 8 months. You can do a good work and make good wages introducing these wheelbarrows to your neighbors. Write for terms to A. I. Root, Medina, Ohio.

Who has not felt the need of a **Light, Strong, and Durable** and at the same time **Cheap** wheelbarrow? The cut shows one that combines all these qualities better than any other we have ever seen. We have two sizes — the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk.

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KIND WORDS FROM OUR CUSTOMERS.

The biographies are "just splendid." O. F. JOY.
Elyria, O., Dec. 22, 1888.

I could not do without GLEANINGS, for I look
for its coming more than for my dinner.
Damascus, Pa., Dec. 18, 1888. S. W. PETHICK.

Thanks for portraits and biographical sketches of
prominent bee-keepers sent with last issue of
GLEANINGS. A. S. BROWN.
Alquina, Ind., Dec. 27, 1888.

I think your biographical sketches are very nice
and interesting reading. I think GLEANINGS extra
good reading, for the price. W. WILSON.
Youngstown, O., Dec. 22, 1888.

I got the biographies of noted bee-keepers, for
which please accept many thanks. No wonder
GLEANINGS is prospering. H. M. MOYER.
Hill Church, Pa., Dec. 21, 1888.

It is a pleasure and a necessity to be a subscriber
to GLEANINGS. The biographical addition to your
A B C of Bee Culture is an interesting enterprise,
so liberally furnished your subscribers in a form
appropriate for reference, for which accept my
thanks. G. E. T. KYBER.
Green Bay, Wis., Dec. 21, 1888.

THOSE LABELS.

Those little labels are beauties. Will you please
send 250 more? We have had the best flow of gold-
enrod honey that I ever knew in 40 years' experi-
ence with bees—100 lbs. in 13 days from one colony.
Ludlow, Vt., Sept. 24, 1888. N. HORTON.

If GLEANINGS can get any better, we can't see
how you can afford it for 100 cts. per year, and
throw in such a nice Christmas present as we find
"Biographies" to be. Thanks; and may the Lord
continue to prosper you. J. C. & D. H. TWEEDY.
Smithfield, O., Dec. 25, 1888.

THE MIKADO TOMATO.

Father thinks the Mikado tomato was worth the
price of the paper for a year. We didn't get it from
you but by your advice. I am greatly interested in
your notes of travel. OSCAR TRUSSLER.
Strasburg, Ont., Can., Dec. 13, 1888.

THE A B C, AND L. C. ROOT'S OPINION OF IT.

The revised A B C is received, and I have found
time only to glance it hastily through; yet I glean
facts from its pages which I count of marked value.
It is certainly well abreast of the time. The cut of
A. I. R., in Dec. 15th issue, is truly good.
Stamford, Ct., Dec. 21, 1888. L. C. ROOT.

Your goods always come nicely packed, and give
good satisfaction—just as represented. I am sorry
that I can not say this of some with whom I have
dealt. N. E. MELICK.

Davey, Neb., Nov. 27, 1888.

I must have GLEANINGS right along. The
glimpses we have of the happy homelife of our em-
inent bee-keepers are worth the dollar, in this age
of divorce and trouble. We might all learn a lesson
from the bees—not to use our stings in our own
households. GEO. L. HUBBARD.
Canton, Dak., Dec. 23, 1888.

KIND WORDS FROM THE FOCHOW MISSION.

I have often rested my weary brain by reading
your cosy, helpful talks in your journal. It gives
me a peep into the "Home of the Bees," and is a
pleasant change from my work among the suffer-
ing ones in my hospital. KATE C. WOODHULL, M. D.
Fochow, China, Oct. 19, 1888.

I have learned a great deal about your family
and the Home of the Honey-bees, and I think much
about them. I appreciate and admire your gentle-
manly and Christian character. I have watched
you closely since 1880. I did not think the noonday
services would hold out, but they go on. I named
my youngest boy Roy Amos, after you—the Amos,
you know. J. H. RODERICK.
Dodd City, Texas.

ADVERTISING THAT PAID.

My ad's in GLEANINGS have paid quite well this
season—better than for two or three years before.
Two years ago my advt bill was \$12.00 in GLEAN-
INGS, and the sum total of all the sales it made for
me was less than \$2.50. This season my bill is \$6.00,
and the sales from it about \$50.00. What makes the
difference? S. C. PERRY.
Portland, Mich., Sept. 26, 1888.

[A larger subscription list might make the differ-
ence; but possibly the character of the advt had
something to do with it. The fact that people are
getting acquainted with you, and accustomed to
seeing your advertisement, has also quite an influ-
ence; in fact, very few advertisements bring any
very immediate sales, unless, indeed, something is
offered at very much less than the usual price, or
something of that sort.]

SECTIONS and FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special
prices. Free samples and price list. 1-12db
(Near Detroit.) M. E. HUNT, BELL BRANCH, MICH.

FOR SALE, BEFORE MARCH,

30 COLONIES ITALIAN AND HYBRID BEES.

Good condition—Simplicity hives—bargain given.
1d P. H. HARRIS, Greenville, Illinois.

FOR Ohio IMPROVED CHESTER PIGS, or the
Finest BROWN LEGHORN FOWLS for breed-
ing purposes, write to FILLMORE DECKER,
1tfd New Florence, Westm'd Co., Pa.

D ADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any
quantity of good, fair, average beeswax, delivered
at our R. R. station. The same will be sold to those
who wish to purchase, at 27c per lb., or 30c for best
selected wax.

Unless you put your name on the box, and notify
us by mail of amount sent, I can not hold myself
responsible for mistakes. It will not pay as a gen-
eral thing to send wax by express.

A. I. ROOT, Medina, Ohio.

Seeds for the Garden and Greenhouse for 1889.

As a number of the friends in the South and Southern California are now sending in their orders for seeds, it reminds us that it is time to indicate our preferences, and to let you know what we feel like advising and offering for sale the coming year.

PRICE 5 CTS. PER PAPER; 10 PAPERS, 40 CTS.; 100 PAPERS, \$3.50.

Seeds of new or rare vegetables and novelties, we include at the uniform price of 5 cents per package; but, of course, we are obliged to put a smaller number of seeds into such packages. This will be noticed with the White-Plume Celery and Snowball Cauliflower, etc. Now, these 5-cent papers are all sent by mail postpaid; but when you order seeds by THE POUND, you must pay 9 cts. extra for postage and packing on each and every pound of seeds ordered. FIVE-CENT PACKETS, POSTPAID BY MAIL, never contain a FULL OUNCE of any thing.

ASPARAGUS.

Conover's Colossal. Oz. 5c; lb. 35c.

There are said to be improvements upon this variety, but they have not been fully tested. No one will lose any thing by planting this old standard.

BEANS.

Dwarf German Wax, or Butter Beans. Pt. 10c; pk. \$1.50. The earliest snap-short variety.

Golden Wax. Pt. 10c; pk. \$1.50.

A staple snap-short bean.

White Kidney, Large. Pt. 10c; pk. \$1.00. Bu., \$3.25.

One of the best to use shelled, when green or ripe. We sell bushels of these at 15c a pint, shelled green. We market them in new pint strawberry-boxes.

POLE BEANS.

Extra-Early Lima Beans. These are fully equal to the old Lima beans, and are fully as productive, and from ten days to two weeks earlier. We consider it an acquisition. Price 15c per pint, or \$2.00 a peck.

Large Lima. Pt. 15c; pk. \$2.00.

We get 20c per pint for these, when green, shelled. See White Kidney bean above.

The above beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pint or 15c per quart for postage.

BEEETS.

Eclipse. Oz. 5c; lb. 60c.

These have given us the best satisfaction of any thing we ever raised in the way of beets. They are a very quick grower, of excellent quality, and the appearance of the bright smooth scarlet bulbs is fully equal to any thing that has been pictured in the colored plates of our catalogues. In order to get a fancy price for them, start them in the greenhouse, and transplant when of the size of peas, or a little larger. They bear transplanting well, and are exceedingly hardy.

Philadelphia Turnip. Oz. 5c; lb. 50c.

This is a little later and larger than the above, and is a novelty because of its alternate rings of dark and light pink.

Lane's Improved Sugar. Oz. 5c; lb. 35c.

The best variety for stock-feeding. It showed a larger percent of sugar at the Experiment Station than any other analyzed. It is so sweet, that, when small, they are nice to eat raw.

Long Red Mangel. Oz. 5c; lb. 30c.

Yields enormously, but not so sweet as Lane's improved.

CABBAGE.

Select, Very Early Jersey Wakefield.

Oz. 20c; lb. \$2.50.

Our cabbage seed this year is raised by H. A. March, Fidalgo Bay, near Puget Sound, Washington Territory. Thousands of sample packages were sent out by us in 1888, and friend March's seeds ought to be pretty well known. The Early Jersey Wakefield, of the best selected strain, is fully as early as any other cabbage known, and greatly superior in quality. We have sold single heads at retail at 20c each, raised from plants started in the greenhouse in February.

Henderson's Early Summer. Oz. 15c; lb. \$2.00.

This comes next to the Jersey Wakefield; and although it is an early cabbage, under very favorable conditions it produces large heads of most excellent quality.

Winningsstadt. Oz. 10c; lb. \$1.50.

Much like the Jersey Wakefield, but later and larger. The heads are round, and some of them are so hard as to seem almost like bullets. Our customers, many of them, greatly prefer these and Henderson's Early Summer cabbage to the later flat cabbages.

Louisville Drumhead. Oz. 10c; lb. \$1.50.

One of the most uniform and surest-heading sorts tried at the Ohio Experiment Station. It is a little earlier than Flat Dutch, hence, may be planted later; just the kind to plant after early crops.

"Newark" Flat Dutch. Oz. 10c; lb. \$1.50.

This is an improvement on the old standard Flat Dutch, and earlier. Pronounced by Brill "extra fine."

Perfection Drumhead Savoy. Oz. 10c; lb. \$1.50.

The Savoy cabbage is handsome in appearance, and richer and finer in quality, than any of the other varieties. In taste it nearly approaches the cauliflower.

Large Red Drumhead. Oz. 10c; lb. \$1.50.

This is a red cabbage for pickling. The bright red, by way of contrast, will make a load or lot of cabbages attract attention, and there is always more or less demand for red cabbage for pickles.

CARROTS.

Early French Forcing. Oz. 10c; lb. \$1.00.

These are small, but very early, and often bring a good price, because they are the first that make their appearance in the market. Bunched up with early radishes, they are very taking in appearance.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.

Yields well, and is easy to dig. The best sort known.

CAULIFLOWER.

Henderson's Early Snowball. ¼ oz. \$1.00;

Oz. \$3.00.

Nice specimens of early cauliflower often bring extravagant prices, and it pays well to start them in the greenhouse, and use hand-glasses to forward them before the hot weather comes on.

CELERY.

Henderson's White Plume. ¼ oz. 10c; oz. 35c; lb., \$4.50.

We place this at the head of the list, and especially for early celery. During the past season we had fine stalks on the market in July, and it sold readily at 10c each. We are planning to have celery this year in the market in the month of June. The seed was started in the greenhouse about the middle of January. On account of its self-bleaching qualities it is better fitted for early celery than any other.

Golden Dwarf. Oz. 15c; lb. \$2.00.

One of the standard sorts for a later crop. The golden tint of the head stalks makes it a very handsome vegetable.

Boston Market. Oz. 10c; lb. \$1.50.

An old standard variety in and around Boston, and raised largely throughout the land.

Golden Self-Blanching. ¼ oz., 15c; oz., 50c; lb., \$7.00.

This celery was raised by us for the first time during the past season. It is different from all others we have seen, in being not only more dwarf—i. e., shorter, but it is also thicker; in fact, the plant, when fully matured, is so thick and stumpy as to create surprise. The variety is also excellent, and the labor of banking up is not more than that of the White Plume. As to the keeping qualities, our experience indicates that it is a rather early celery, and should be used soon after approaching maturity. We shall test it this year side by side with the White Plume for our very earliest.

CORN (FOR TABLE USE).

Ford's Early Sweet.

Excellent in quality, and exceedingly early.

Cory's Extra Early.

Cory's corn this season has not only proved to be the earliest by ten days or two weeks, but the ears are surprisingly large and fine; and the quality, if cooked at once, as soon as picked, is almost equal to any sweet corn we have. It is quite an acquisition.

Crosby's Extra Early.

This is a great yielder, with soil suitable, although it comes a little later than Ford's.

Late Mammoth Sugar.

This is excellent in quality, and gives ears of mammoth size, and is a wonderful yielder. Our trade has been very large in this kind of corn for eight or ten years past.

Corn we sell at 5 cents for a half-pint package; but at this price purchasers must pay the postage, which is 3 cents for each half-pint. If wanted in larger quantities the price will be \$1.00 per peck, or \$3.50 per bushel.

CRESS, OR PEPPER GRASS.

Extra Curled. Oz. 5c; lb. 50c.

CUCUMBER.**Early Frame.** Oz. 5c; lb. 50c.

The earliest cucumber.

Rawson's Improved Early White Spine. Oz. 25c; lb. \$2.50.

This is the kind he uses for raising in his greenhouse, and the cucumbers bring 50 to 75 cents each, even where he raises them by the thousands. Fine specimens are wonderfully handsome and taking, and they sometimes grow to a great size without getting yellow.

Green Prolific Pickle. Oz. 5c; lb. 60c.

This is the kind generally used for raising pickles for market.

KOHLRABI.**White Vienna.** Oz. 10c; lb. \$1.25.

This is a quick-growing vegetable, half way between turnip and cabbage. If the plants are started in the greenhouse, the vegetable may be put on the market at the same time with the very earliest cabbages; and where people once get a taste of it, it is pretty sure to meet with a rapid sale at good prices.

LETTUCE.**Grand Rapids Lettuce.** $\frac{1}{4}$ oz., 10c; ounce, 35c; pound, \$4.50.

This is a new variety, developed in the vicinity of Grand Rapids, specially for greenhouse culture. It has been developed from the Black-seeded Simpson, by something like fifteen years of careful selection. It is superior and beautiful in appearance, a strong grower, very tender and crisp, and, so far as known, free from rot, and will keep from wilting longer while exposed for sale than any other variety known. At least fifty large greenhouses are now engaged in raising this kind of lettuce for market, in the neighborhood of Grand Rapids, Mich. For further particulars, see our new book, "What to Do," etc.

Boston Market. Oz. 10c; lb. \$1.00.

The best variety of head lettuce for greenhouse culture, as the heads are small, but compact and handsome.

Landreth's Forcing. Oz. 15c; lb. \$2.50.

Excellent for hot-beds and cold-frames; exceedingly early. The heads are small, and may be sent to the table in their entire form, on the root.

Henderson's New York. Oz. 20c; lb. \$2.50.

We consider this the best head lettuce for outdoor culture known. Even the chickens have discovered that it is of superior quality. They will run over our beds and pick out every head of New York lettuce, without paying any attention to any other kind.

Hanson. Oz. 10c; lb. \$1.00.

An old standard variety, producing heads that sometimes weigh as much as 2 lbs.

MELONS, MUSK.**Extra Early Citron.** Oz. 10c; lb. \$1.00.

Always profitable because of its extreme earliness.

Casaba, or Persian Muskmelon. Oz. 5 cts.; lb. 60c.

A standard large variety.

Montreal Nutmeg. Oz. 5c; lb. 60c.

Large size, beautiful looking, very small cavity for seeds, and one of the very best.

Pine Apple. Oz. 5c; lb. 60.

Excellent in quality, and only medium in size.

Banana. Oz. 5c; lb. 75c.

I consider this one of the best muskmelons it has been my fortune to taste, judging from specimens we had last season. They are long like a rail, or like a banana, if you choose; but the color is strikingly like a banana, and, what is more wonderful still, it has an odor also like the banana.

MELONS, WATER.**Phinney's Early.** Oz. 5c; lb. 60.

The quality is very good, but the size is not very large.

Landreth's Boss. Oz. 5c; lb. 60.

A melon that seems to combine more of the good qualities for a large late watermelon than any other.

ONION.**Mammoth Silver King Onion.** Pkt., 5c; oz., 20c; lb., \$2.50.

We first procured this seed from William Henry Maule. To get the onions early, the seeds are started in a box in a greenhouse. When about two inches high they are planted out as you would plant out cabbage or celery. During August and September we had onions larger than anybody else had ever seen or heard of, in our locality; and as we sold them by the pound, many of them brought 10 cts. each. We regard them as an acquisition.

Extra Early Red. Oz. 15c; lb. \$2.00.

Medium size, red, and an excellent keeper.

Silverskin, or White Portugal. Oz. 25c; lb. \$3.50.

A standard variety for pickles, or for handsome bunch onions. Better flavored than the dark-skinned.

Yellow Globe Danvers. Oz. 20c; lb. \$1.75.

A standard yellow variety. The best of all to grow from seed. It makes a wonderful difference, however, how the seed is grown. Some strains will give nearly double the crop that others will. Our seed for this year was grown by a near neighbor, the father of W. J. Green of the Experiment Station, Columbus, Ohio.

ONION SETS.

We have those of Yellow Danvers and Silverskin.

Prices, of yellow, 10c per pint; \$1.50 per peck, or \$5.00 per bushel. Silverskin, one-half more than above prices. Large-size sets (often used for pickles), one-half the above prices. By mail, 15 c. per qt. added.

Winter, or Egyptian Onion Sets. $\frac{1}{4}$ pound, 5c; pound, 15c.**PARSNIP.****Bloomsdale.** Oz. 5c; lb. 40c; 10 lbs., \$3.00.

This is the only kind we have, but we consider it equal to any.

PARSLEY.**Fine Curled or Double.** Oz. 5c; lb. 50c.**PEAS.****Landreth's Extra Early.** $\frac{1}{2}$ pt. 5c; pk. \$1.50.

We consider this equal to any for the first peas of the season. It yields its crop in a very short time. Not equal in quality to the American Wonder.

Alaska Peas. $\frac{1}{2}$ pt. 5c; peck, \$1.50.

This is the favorite early pea of the Rural New Yorker, and is with many taking the place of any other early pea.

American Wonder. $\frac{1}{2}$ pt. 10c; pk. \$2.00.

This is a cross between the Champion and the Little Gem. The vine grows from 6 to 8 inches high. It is the first to ripen among the green wrinkled sorts. On account of its dwarf habits it can be grown very easily under glass.

Stratagem. Pt. 20c; $\frac{1}{2}$ pt. 10c; pk. \$2.50.

This has made its way rapidly in public favor. It is not only of rare excellence in quality, but the pods and peas are so large and fine looking they call attention at once from anything else in the market. It has given us excellent satisfaction.

Champion of England. Pint, 15c; pk. \$1.50; bushel, \$5.50.

So well known as to need no recommend here.

Marrowfat. $\frac{1}{2}$ pt. 5c; pk. 75c; bu. \$2.50.

One of the most desirable and well-known late sorts.

*Peas by mail will be at same rate of beans for postage.***PEPPERS.****Spanish Pepper.** Oz. 25c; lb. \$3.00.

A new variety, so large that the natives of warm climates slice them up and fry, as an article of food.

Bullnose. Oz. 25c; lb. \$3.00.

A larger variety than the above, but in every other respect the same.

Cayenne Pepper. Oz. 25c; lb. \$3.00.

Much called for, for seasoning soups, pickles, etc.

PUMPKIN.**Connecticut Field.** $\frac{1}{2}$ pint, 5c; quart, 15c; peck, 50c; bushel, \$1.50. If wanted by mail, add at the rate of 15c per quart for postage.**RADISHES.****Early Scarlet Globe.** Pkt. 5c; oz. 10c; lb. \$1.00.

This is the radish that Vick gives such a beautiful chromo of in his catalogue for 1888; and for forcing in the greenhouse, it is ahead of any other in the way of forcing radishes. They begin to form a bulb almost as soon as the second leaves come out. They are very hardy, and of exceedingly rapid growth.

White-tipped Scarlet Turnip. Oz. 5c; lb. 60c.

A fancy variety of the scarlet bulb with white bottom; very showy.

Lady Finger. Oz. 5c; lb. 60c.

One of the standard long radishes. Sometimes it grows as large as a parsnip, and yet is of excellent quality.

Beckert's Chartier Radish. Oz. 5c; lb. 50c.

A novelty, and one that has given us the greatest satisfaction; of rapid growth and good size, both at the bottom and top. In favorable soil it will grow to a large size, and still be excellent in quality. The Chartier radish has been to us an acquisition during the past year. They are remarkably certain to make a good bulb.

RHUBARB.

Either Victoria or Linnæus. Oz., 10c; lb., \$1.50.

SALSIFY, OR OYSTER PLANT.

A vegetable that is sure to be called for, where it is once introduced. Oz. 10c; lb. \$1.50.

SPINACH.**Bloomsdale Extra Curled.** Oz. 5c; lb. 35c.

It combines as many of the good qualities as any other.

SQUASH.**SUMMER VARIETIES.****Early White Bush, or Patty Pan.** Oz. 5c; lb. 60c.

Not surpassed by the Golden Summer Crookneck. One of the old staples.

Golden Summer Crookneck. Oz. 5c; lb. 50c.
The standard summer squash.

WINTER VARIETIES.

Perfect Gem. Oz. 5c; lb. 50c.

A round squash, about 6 inches in diameter. The quality is excellent, and it will keep till spring.

Hubbard. Oz. 10c; lb. 60c.

Too well known to need comment.

Boston Marrow. Oz. 5c; lb. 60c.

An old standard staple, especially in and around Boston.

TOMATO.

Golden Queen Tomato. Pkt., 5c; oz., 25c; lb., \$3.50.

This is no special novelty, that I know of, over other tomatoes, except its beautiful golden yellow color; but at the same time the tomato is good-sized, and remarkably smooth and regular. The quality is equal to any. Many specimens of the fruit have a rosy tint toward the blossom end, giving it something the appearance of a beautiful yellow peach, with a slight blush of red.

Mikado. Oz. 25c; lb. \$3.00.

We still give the Mikado the preference for an ALL-PURPOSE tomato. You can prepare them quicker for the table or canning, and get more bushels of nice tomatoes than from any other kind. We are marketing BUSHELS of them that weigh from one pound to a pound and a half apiece.

Dwarf Champion. Oz. 50c; lb. \$6.00.

This is a great acquisition for an EARLY tomato. It is not only very early, but the shape is equal to any of our best kinds. They are smooth and handsome, and ripen all over nicely, quite a little ahead of the Mikado.

Aeme. Oz. 20c; lb. \$2.00c.

Too well known to need comment.

Trophy. Oz. 20c; lb. \$2.00.

A companion to the Aeme.

Livingston's Beauty. Oz. 25c; lb. \$3.00.

This is a production of the same Livingston who brought out the Aeme, Trophy, Favorite, and Perfection; but he pronounces this superior to them all. They are better shaped and smoother, than the Mikado, but not so large.

Pear-Shaped Tomatoes. Oz. 20c; \$3.00.

These are handsome for pickles and preserves. We have them of two colors—red and yellow. They are immense bearers, and of good quality.

TURNIP.

Early Bloomsdale Red Top. Oz. 5c; lb. 60c.

One of the best for the first turnip in the market.

White Egg. Oz. 5c; lb. 40c.

Very showy and handsome, as well as quite early. Last season they sold readily for a dollar a bushel in our market as fast as we could get hold of them.

Yellow Aberdeen. Oz. 5c; lb. 40c.

We consider this the best table turnip grown. When cooked it is so yellow that it will sometimes be mistaken for squash.

Purple-top White-globe Turnip. Oz. 5 c.; lb. 40 c.

This turnip has given us the best results of any thing we tried; the quality seems to be unusually fine for table use, especially when they are about as large as fair-sized apples. They probably grow as quick as any turnip known, and are very handsome. When washed they are almost as white as an egg, with a beautiful purple around the top. They are smooth and round.

Bloomsdale Swede. Oz. 5c; lb. 50c.

Perhaps the best of the Rutabaga varieties.

A. I. ROOT, Medina, Ohio.

IMPORTED QUEENS.

In May and June, each - - - - - \$2 00

In July and August, each - - - - - 1 80

In September and October, each - - - - - 1 40

Money must be sent in advance. No guarantee on shipments by mail. Queens sent by express (8 at least), which die in transit, will be replaced if returned in a letter.

1-11d CHAS. BIANCONCINI, Bologna, Italy.

In responding to this advertisement mention GLEANNINGS.

B. J. MILLER & CO.,

NAPPANEE, - ELKHART CO., - IND.,

MANUFACTURERS OF

BEE-HIVES AND SUPPLIES.

Sections, T-tin cases, shipping-crates, metal corners, etc. Five per cent discount on supplies in Jan. and Feb. Price list free. Send for one. 1tfdb

In responding to this advertisement mention GLEANNINGS.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—Honey.—We quote choice white clover, in 1-lb. sections, single tier; 14@15; fair, 12½@13½; dark and broken, 9@11; extracted, choice white clover, in 10 to 15 lb. cans, 9@10; large cans, 8@9; bbls., 6½@7½. Southern honey, choice bright, 6@7; dark, 5@6.

Bee wax, prime, in lots, 20@20½; selected, choice, 21@22, small way. Honey in good demand.

W. B. WESTCOTT & Co.,

Dec. 22.

St. Louis, Mo.

NEW YORK.—Honey.—Market is rather quiet on comb honey, but we expect an increased demand after the holidays. Buckwheat extracted, in good demand, at from 6@6½. Now is the time to ship it.

Dec. 22.

HILDRETH BROS. & SEGELKEN,

28 & 30 West Broadway, New York.

COLUMBUS.—Honey.—Our market is very slow on both comb and extracted honey. If we had had the same article we have at present two months ago, it would have sold on arrival. This, again, confirms the assertion that producers should endeavor to find a market for their honey as soon as possible after taking it off. I have produced a limited amount of honey for the past 8 years, and have always found a good market soon after it was taken off.

Dec. 21.

EARLE CLICKENGER,

Columbus, O.

DETROIT.—Honey.—Comb honey continues to be quoted at 16@18 cts. Sales are more frequent as the holidays approach. **Bee wax,** 22@23.

Bell Branch, Mich., Dec. 22, 1888. M. H. HUNT.

ST. LOUIS.—Honey.—Honey in sections, scarce, both strained and extracted. We quote dark, 5@5½; light colored, 6@6½. Cans, 7@8. Comb, 14@16.

Bee wax, 20.

D. G. TUTT GROCER CO.,

Dec. 22.

St. Louis, Mo.

NEW YORK.—Honey.—The market is pretty well cleaned out of comb honey. Fancy good, 1-lb. sections, white clover, 17; no demand for extracted.

Dec. 22.

THURBER, WHYLAND & CO.,

New York City.

KANSAS CITY.—Honey.—No change in the honey market since our last quotations.

Dec. 22.

CLEMONS, CLOON & Co.,

Kansas City, Mo.

BOSTON.—Honey.—No change in prices. Sales are good and from present indications all the honey in the country will be sold by Feb. 1.

Dec. 27.

BLAKE & RIPLEY,

Boston, Mass.

FOR SALE.—About 800 lbs. of mixed honey, at 7c per lb., put up in 5-gal. kegs. The combs were tiered on the hives all through the season until November. The honey is very thick and nice, and was gathered from white clover, basswood, buckwheat, and fall flowers. Sample by mail free.

G. D. BLACK, Brandon, Iowa.

CONVENTION NOTICES.

The Nebraska State Bee-Keepers' Association will convene at Lincoln, Jan. 9, 10, and 11, 1889. J. N. HEATER, Sec.

The annual meeting of the Ontario Bee-Keepers' Association will be held in Owen Sound on the 8th and 9th of January, 1889. W. COUSE, Sec'y.

The annual meeting of the Vermont State Bee-keepers' Association will be held in the Court-house, at Middlebury, Tuesday, Jan. 15, 1889. MARCIA A. DOUGLAS, Sec., Shoreham, Vt.

The annual meeting of the Indiana State Bee-keepers' Society will be held in the Agricultural Rooms in the Statehouse in Indianapolis, beginning at 10 o'clock A.M., Jan. 16, 1889. Reduced railroad rates secured by purchasing through tickets to Indianapolis, taking agent's certificate for the same, and having it countersigned by the secretary of the society. GEORGE C. THOMPSON, Sec'y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfdd



Vol. XVII.

JANUARY 1, 1889.

No. 1.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

SOMETHING ABOUT BEE-HIVES.

FRIEND DOOLITTLE TALKS TO US ABOUT THEIR PROPER SIZE, AND GIVES HIS REASONS.

I AM requested to give an article in GLEANINGS, on bee-hives. In doing this I will simply give the readers a little of my work in the past, and how I was led along step by step till I adopted the size of brood-chambers which I now use. When I first commenced to keep bees, all of the hives then in use contained from 2000 to 2500 cubic inches of space for a brood-chamber. After using such a hive for a year or two I came to the conclusion that this brood-chamber was too large, so I went to studying on the matter to see if I had concluded right. By many carefully conducted experiments I found that queens, as a rule, would not occupy more than 800 square inches of comb with brood for any length of time; hence it was plain to be seen, that, if I used a hive of the usual size which gave 1450 square inches of comb surface, I should have 650 square inches of comb to be occupied with honey and pollen. In case I hived a new swarm in such a hive, I should have from 500 to 600 square inches of comb filled with the best of honey, which would be from 25 to 30 pounds. We were told that this extra room was needed in case of a poor season, so as to insure honey enough for safe wintering. So each year my bees were wintering on from 25 to 30 pounds of the very best of honey, which should go into boxes, and be turned into cash; and in case of a poor season, the bees could be looked after; and if they did not have honey enough for winter, they could be fed sugar syrup, or given frames of honey, if we had such on hand.

Another thing, I found that, in having this amount of honey stored in the hive, the bees were very loth to commence work in boxes afterward; for in doing this they got to crowding the queen, and also they had sealed honey next the sections, instead of brood, which brood all know is a great enticer into the sections. In order not to get any pollen in the sections, I allowed 200 square inches of comb (above the 800 the queen occupied) for that, so I had 1000 square inches of comb space, or about 1500 cubic inches as the right size for the brood-chamber, regardless of what style of frame is used. Of course, the frames will not always give just the number of square inches inside of them which is required, but we can use the number which comes the nearest to it. For instance: I use nine Gallup frames, which give 1035 square inches of comb; while if I used but eight it would give me but 920. To get the square inches of comb in the frame, multiply the length by the depth, then use the number of frames which comes the nearest to 1000 inches. Mr. Gallup used 12 frames in his hive; and as he was my teacher, I, of course, used the same number when I first began. When I came to see things as above, I reduced them to nine by using three blank boards, or dummies, in place of the frames. The number of frames can be reduced at any time in any hive, in this way, with but little expense, and that, too, without disturbing the hive at all, or altering the space given to surplus above. These boards I made of inch lumber, the size of the inside of the hive (fitting loosely) below the rabbets, with the top-bar of a frame nailed thereto, so that it hangs in the hive just like a frame. Later years I have used what is termed "the contraction method," and think that at times

there is an advantage in it; but, so far as I have now explained, there is no contraction about it, for this is as large as I would have a hive when working for comb honey, as it gives the queen all the room she will occupy, and more room than this is worse than useless. Hives should be made so that all of the bees can be kept profitably at work; and if you have a three-frame nucleus well supplied with bees and queen, you should be able to get just as much comb honey from it in proportion to its numbers, as from a full colony. Unless a hive is calculated for this, it is lacking just one important feature. Hives as above described require less manipulation to secure good returns from them than do either larger or smaller hives; yet, do and say what we will, it is the management of hives that gives the practical apiarist good returns of snow-white comb honey—such as sells readily in any market in the world, when a second quality will go begging. Whatever hives we may use, they must be diligently looked after from the time spring opens till the bees are ready for winter; and unless a person can thus do, he had better not go into apiculture expecting to make a success of it.

As hinted at above, one secret of success in getting comb honey is to get the brood-combs all occupied with brood before the honey harvest opens, so that, when it does commence, the bees are obliged to put the honey in the sections. If we use a small brood-chamber it will be seen that the brood comes clear to the tops of the frames or hive, and consequently very close to the sections; hence the bees readily enter them, while with a large brood-chamber, the bees store the comb the queen does not occupy, with honey at the beginning of the harvest, so that the sections are excluded from the brood by several inches of sealed honey, which, not liking to pass over, the bees often refuse to go in at all. Gallup saw this point, even though he advocated a large hive; for he said, more than 25 years ago, "We should never allow the bees to get in advance of the queen; for if we do, the prosperity of the colony is checked at once; that is, if the bees are allowed to fill the combs with honey in the spring before the queen has filled them with brood, the colony will be an unprofitable one." This point is one well worthy of our closest attention; and it is only as we look to all of these points, and bring them into line with our work, that we can expect to meet with the greatest success. I have given this article thus early, so that all who are thinking of making hives this present winter can try a few as above, so as to see if I am right.

Borodino, N. Y., Dec. 16, 1888. G. M. DOOLITTLE.

SWEET CLOVER.

ITS VALUE AS A HONEY-PLANT IN THE REGION OF
SALT LAKE CITY.

BEING requested by the editor to write an article on the above subject, I have written up the habits, etc., of the plant. Some of the points which I shall give are probably known to a great many of the fraternity, but I think they will bear repeating.

Sweet clover grows here along the water-courses, moist waste places, along the roadsides, and in neglected fields. It grows from six inches to as many feet in height, according to the location, and it is covered with an abundance of bloom from top to bottom, yielding in most seasons an abundance

of nectar, which, after being gathered and stored, produces honey of the very best quality and color. It does not generally bloom in the first year; but in the second it commences about the first of July, and keeps up a continual bloom until killed by frost, furnishing bees with pasturage, generally from the middle of July until the latter part of August.

Sweet clover is sometimes used for pasturage, and also for making hay, if cut when young, though it is a long way behind alfalfa for that purpose. Though it is sometimes relished by stock, very few would sow it for feeding. If eaten while green it is in a measure a cause of hoven, or bloat, in cows. If you wish good milk or butter you had better not feed it to milch cows, as it imparts a very disagreeable taste to it. If eaten off by stock it will soon recover, and produce an abundance of bloom for the bees.

It is a very fair fertilizer; and it is also claimed that, if planted on alkali land, it will feed on the alkali and exhaust it, besides bringing to the surface, with its long roots, elements necessary to plant-life.

As sweet clover is a biennial it is not a very hard weed to eradicate, and very seldom troubles cultivated fields, though it will sometimes seed a field; and if such field is planted to grain the following season, it will come up, and is cut off only with the reaper. Next season, if the same field be neglected, it will quite likely be covered with sweet clover, and that, too, sometimes as high as your head. If a field is cultivated as it should be for two seasons, the clover will entirely disappear. The plant requires a little moisture in the soil the first year; but after that it will grow without. I consider it, for my part, a great deal better to see a roadside lined with it than the sunflowers, etc., that generally grow in such places.

Now, to sum up, sweet clover is our main honey crop in this locality. It is our best honey; and said honey, I may say without boasting, compares favorably with the best grades known.

I do not think it will pay to sow it for honey alone, unless on such land as is considered worthless; but I think it would be a benefit to *such* land.

As to the amount of nectar it will produce per acre, I am unable to say; but I think it will compare favorably with white clover; in fact, I think that it produces fully two-thirds of our honey crop in this locality, and I should consider this a poor country for honey, if it were destroyed; but as it is, we generally get a crop; that is, the bees generally have some honey to spare.

J. C. SWANER.

Salt Lake City, Utah, Dec. 22, 1888.

I would say to our readers, that it seems to me friend S. has been quite careful and conscientious in giving the objectionable features of sweet clover in the region of Salt Lake City, as well as the good qualities. In that locality there are a very few plants that will stand the fierce drouth of summer; but sweet clover seems to be one of them, and it might be easily grown on thousands of acres that now bear nothing but weeds of no value. Much of this desert soil is so light that it is very easily prepared for a seed-bed. After sweet clover has once got a start, it furnishes about as permanent bee-pasturage as anything I have ever found. In fact, I could not find any

of the bee-keepers around Salt Lake City or Ogden who say they ever have seasons of no honey at all, such as we have had here several times during the past twenty years. Not only does sweet clover yield honey, but, after testing it in a good many places, I pronounced it equal in appearance and flavor to any honey we have in the world. When my Notes of Travel get far enough along to reach it, you will see what I wrote down on the spot. The first time I tasted it at friend Woodmanse's I uttered an exclamation of surprise, and asked him what was the source of the beautiful honey. Even before he spoke, there seemed something familiar in the delicate flavor; and when he said sweet clover, I recognized it as plainly as if it were but a piece of stalk in my mouth. It tastes very much as sweet clover smells when its green leaves are bruised slightly. The flavor is not rank enough to be at all disagreeable. The extracted honey is very thick, and has the same beautiful flavor as the comb honey. It seems to me that these facts give us a wonderful opening for starting a honey-farm where land is cheap, and nothing else will grow on account of the long severe drouths. We should be glad of more facts from those who have had experience with it in desert localities.

THAT WINTERING PROBLEM.

IS IT OR IS IT NOT SOLVED?

ON the 9th of December, and Sunday at that, I had to set all my strong colonies out of the cellar. It is just one month since they were set in, during all of which time as a whole it was too hot to control them. The result is, most of them have symptoms of disease. They had a good flight, which may help them some. I worry more over the wintering problem than all other features of bee-keeping put together. No wonder that I devour every scrap of bee-lore on this topic that falls within reach. Some time ago, Mr. Heddon came out in his prospectus, "The Wintering Problem Solved." This was taking. 'Twas enough to sell a thousand copies at one clip. If I remember, he stated that "bees could be wintered with the certainty of our domestic cattle." Surely, then, in the interest of our pursuit it is only fair to ask Mr. Heddon if he has been able to do so.

I wish he could say yes.

I was gratified to observe in the November issue of the *Review* the semblance of unity in one feature of cellar wintering. I felt thankful for that number; for, as it turns up in practice, we have a great deal that conflicts with the theorists. I hold, that, so long as a batch of men continue to disagree, and that, too, upon points where "location" won't close up the breach, to put it honestly, I refuse to believe that they know whereof they affirm. Have we been able to safely anchor any of the speculative barques upon the sea of apiculture? I have thought, so far as GLEANINGS is concerned, that Uncle Amos ought to have been a sort of supreme court from whom there was no appeal. But instead he says, "Boys, let us shake hands across this bloody chasm. Can I sell you any thing to-day?" I am deeply interested in all that

pertains to the honey-bee. I love light and truth, and would follow it; but as it turns out, I am chagrined to think that, after all, I have been following the blind gropings of a Cyclops around the walls of his cave.

I. HAMILTON.

Beason, Ill.

Friend H., Mr. Heddon can answer for himself. Does the expression, "Can I sell you any thing to-day?" exactly fit Uncle Amos? If you will prepare your bees in chaff hives, as directed in the A B C book, I feel sure they will winter just as well as our bees do, *year after year*, here at the Home of the Honey-Bees. My experience is, that those who work on Sunday usually have trouble.

CABBAGE AND CAULIFLOWER FOR '89.

H. A. MARCH ASKS ABOUT THE JERSEY WAKEFIELDS.

FRIEND ROOT:—I asked you to give me some reports (good or bad) on the cauliflower seed I sent you for trial. I haven't received a bad report yet. If yours is bad it may take a little of the conceit out of me, for I begin to think I can raise better seed than they raise in Germany or Holland; and, what is better, I can raise it at less than half the price it costs there. I sent, as you advised me to, some samples to W. J. Green, Columbus, and this is what he says:

All of the varieties sent give satisfaction. One thing is noteworthy about your seed; and that is, its large size and great vitality, producing very strong healthy plants. If you can grow seed equal to that sent us, you need not hesitate to make high claims for it.

You see, this is a new industry. Cauliflower seed, I believe, has never been grown in this country by field culture before I made the trial here on Puget Sound. All of the best seed has been imported from Erfurt, Germany, at a cost of about \$40.00 per lb. Now, here in Washington Territory we can raise just as good seed for \$15.00 per lb. But prejudice is so strong in favor of imported seed that dealers are afraid to come out and offer the seed on its own merits. The question is, How shall I push my seed forward so that people can get cheaper seed? Can you advise me? What do you think of this plan? Get the address of all the experiment stations in the country, and send them samples for trial, and publish their reports in a paper like the *Rural New Yorker*. How to get their address, that is the next thing. Can you tell me how that can be done?

H. A. MARCH.

Fidalgo, Skagit Co., Wash. Ter.

Well, friend M., we raised so many cauliflowers we could hardly sell them or give them away; for, to tell the truth, for a long while we offered cauliflower at the same price per pound as we sold Jersey Wakefield cabbages. But our Medina people are so little accustomed to using cauliflower unless it be for pickling, the cabbage rather took the preference, even though the price was alike—3 cts. a pound. During the fall we had rather better demand when they commenced using it for pickles, and we have quite pretty heads of Snowball cauliflower down in our greenhouse at this date, Dec. 27. Will the friends who tested the cabbage and cauliflower seed last season please tell us briefly how the seeds turned out? If I understand it correctly, friend March does

not care to sell seeds at retail, so you may send your orders to us, if you please. Should you wish seed, however, to sell again, perhaps the better way would be to buy directly of friend M. The above letter was probably not intended for publication; and while friend M. thinks he can, on a large scale, raise cauliflower seed at \$15.00 a pound, I presume none of our readers will understand that he proposes to sell a single pound at that price. In regard to the address of the experimental colleges, I think our readers in the different States can give friend M. the addresses he desires.

SELLING EXTRACTED HONEY.

MRS. HARRISON GIVES US SOME OF HER EXPERIENCE.

A BEE-KEEPER of this State wrote to me to know if I could not sell extracted Spanish-needle honey, put up in twenty-gallon kegs. I made inquiries, and the result was something like this: Going into a drugstore, the proprietor said, "Buy a twenty-gallon keg of honey! Oh, my! that would last us twenty years. I would buy twenty pounds." After trying the retail drugstores I went into a large wholesale establishment. In answer to my inquiries the proprietor said, "I had some difficulty in obtaining honey this fall, but I have a supply now. I had honey in barrels offered me at 7 cents per pound; but I did not want it. What I bought is put up in tin cans, like fruit, and will not granulate. I paid from 12 to 14 cents per pound for it."

I kept thinking about that honey that would not granulate, so yesterday I took the street-cars and went to buy a can. There was a placard stuck up, saying, "No goods sold at retail." The clerks said no. I went to the proprietor, and told him I wanted to buy a can of honey; that I had honey at home, but that I wanted to learn how the trade preferred it put up. He put a speaking-tube to his mouth, and soon had a can upon his desk. I paid 45 cents for a three-pound can.

I weighed this can just now, and it weighed 3½ pounds—honest weight, surely. The cover was fastened down with something like plaster of Paris, in lieu of sealing-wax. I dug a little place at one side with the point of a knife, and easily pried it up, with the sealing attached to the cover. I should think the can would hold 4 pounds, as there is more than an inch of space above the honey.

WHAT I FOUND IN THE CAN.

The children had a great deal of curiosity to see what was in the can, as well as myself. The first thing I saw was three legs, and a wing and a leg together, floating, which had once belonged to the busy workers. Perhaps these were put in as an evidence that it was *bee* honey, as the label declared it to be—just as an Irish girl, seeking a situation, showed her hands on being asked if she could make bread. "Sure, here is the dough under me finger-nails from my last baking." I took a saucer and teaspoon, and dipped out some of the honey, and then went out to the honey-house with another saucer and spoon, and brought in what I knew to be basswood honey, while the baby stood by saying, "What are you going to do, mamma? Compare it. I can tell it. That one is brown, and this one is yellow." She was correct. Our basswood is a light

yellow, while that from the can was dark. The can is labeled, "White clover and basswood," and below it says, "It is not possible in all cases to have the contents of each jar entirely from the blossoms named, yet sufficiently so to give distinctly their characteristic flavor."

I saw that this honey was the product of this county, and was puzzled to know how it could be white clover, as it has failed here for two years. The label should have been erased, and "fall flowers" put in its place, as it is thick, well-ripened honey, the product of Spanish needle and other fall flowers. It will injure the trade in honey in cans, if it is not what it purports to be. The honey is liquid on top, but about as thick as hasty pudding below. I will make a selection from a letter before me, with reference to Spanish-needle honey granulating.

"I have been in the bee-business for 15 or 20 years; I keep my honey in barrels and cans for a year, and never had any granulate enough so but that it would run out of a bung-hole whenever the weather was not too cold. Nine-tenths of our honey is Spanish needle, which does not granulate when well ripened; but if extracted too green (if that is the word) it will granulate."

In purchasing this honey I thought I was going to find out how to put up honey so that it would not granulate, which would be a bonanza to bee-keepers, but I failed. The proprietor of the drugstore thought so, but was mistaken. Our basswood honey is liquid up to date, Dec. 7, but the weather has been uncommonly mild. It is in a tin can which has a cover that fits down closely, while a jar standing near containing mixed honey with a cloth tied over it is solid. I infer that honey that is exposed to the air granulates sooner than that which is not; for a pitcher of basswood honey that I kept to pour out of to customers is now solid.

Peoria, Ill.

MRS. L. HARRISON.

Mrs. H., there is something a little singular about that inscription on that can of honey you bought. The first extracted honey we ever put up, nearly twenty years ago, I began labeling "White Clover." "Basswood," etc.; but an old bee-keeper at once commenced finding a good deal of fault. He said that the bees never gather honey entirely from one source, and that I could not possibly furnish a jar of honey that was all of white clover, or all basswood, etc. I admitted the truthfulness of his criticism, and at once added to the label the words you quote—"It is not possible in all cases," etc. As you have given it word for word it is a copy of my label, for it could not have been otherwise. I believe that any honey is much less liable to granulate when left in the hive until it is thoroughly ripened by the bees. I do not know what process they put it through, but they seem to know better than anybody else just what to do to honey to prevent granulation. I believe that it is at least generally true that well-ripened honey from Spanish needle seldom if ever granulates. We have had it a great many times, and kept it where it was so cold you could almost cut it with a knife, but there was no granulation. Of course, every bee-keeper or packer of honey should be very careful to have the label state correctly the contents of each can or jar.

CARRYING HIVES INTO A WINTER REPOSITORY.

Doolittle's Method Criticised.

FRIEND ROOT:—I have read with considerable surprise friend Doolittle's article in *GLEANINGS*, Nov. 1, on placing bees in the cellar. My surprise is, that one person should attempt to handle hives at all without assistance. Friend Doolittle must be a modern Samson. The most of us frail mortals certainly prefer help on such occasions. Where I formerly lived, the apiary was 75 or 100 yards from the cellar, and down hill. We used to employ the two strongest men the town afforded, to carry the bees into the cellar, beginning after supper, and finishing about 10 o'clock. We have paid as much as \$3.00 for the job. We used a stretcher, carrying two hives at a time, but it was so laborious that I finally insisted on one hive at a time. It is surprising how much lighter one hive is than two. I suppose figures will not lie, but it certainly seems much more than as light again. My apiary is now near the cellar, and level walking, except the decline of two feet into the cellar, which extends a space of sixteen feet. I have 68 hives. With the aid of a student I took one-half into the cellar the evening of Nov. 21st, and the next evening took in the rest. This comes under the head of light work when managed in this way. The cost was 50 cts.

I wish to say right here, that I can now manage my bees alone, with one-third the expense, bother, and work, that it took the entire family of seven, eight or ten years ago. So much for experience.

Now to return to the subject. By carrying with a stretcher there is no occasion whatever for any jarring, unless it be when the upper hives are tiered in the cellar. How, under the sun, Doolittle can pile up his fourth hive, and no bottom at that, is more than I know. I should very much discourage both methods of carrying in bees, of which he speaks. I like the plan of generous ventilation from below, except that I fear my bees would all come out on me, especially when taken down to carry out in the spring. They are always very uneasy at that time.

I have tried an experiment in the way of wintering this time. I have often thought that the bees were too warm in the cellar, with the heavy airtight mats over them, so this time I took off every thing except the piece of burlap, folded it, and covered only the front half of the frames above. This leaves half the hive exposed to the air, and free access into the cover. It may prove a great mistake, but I do not see why. The cluster can doubtless retain sufficient heat to keep the brood if they have any. I suppose, friend Root, you are well aware that the bee does not believe in ventilation at all (ought to be a railroad conductor), as it will seal every crack in the hive except the one small entrance. I have often thought that, if Nature ever made a mistake, it was in this case with the bee. However, perhaps in the natural wild state of the bee this sealing is quite right.

JOHN F. WHITMORE.

Grinnell, Iowa, Nov. 29, 1888.

Friend Doolittle is a big man in two senses of the word. We have not a particle of doubt but that he can lift easily the hives, and carry them into the cellar in the manner

he describes. Perhaps friend Miller's method, described on page 962, Dec. 15, 1888, would be more to your liking.

ANOTHER METHOD OF PERFORATING ZINC.

SOME OF ITS ADVANTAGES AND DISADVANTAGES.

FRIEND ROOT:—Inclosed you will find a sample of zinc, such as I have been using in the queen-excluding wood-zinc honey-boards. I believe this plan of perforating is preferable to the two parallel rows of holes as usually made.



SHEPHERD'S PERFORATED ZINC.

It certainly gives more openings than any other plan, and at the same time leaves it sufficiently rigid for all purposes. I will also say, that the work was done on a home-made machine that does the work as per sample, as regards quality; and the cost was but small.

M. W. SHEPHERD.

Rochester, Ohio.

At first sight, friend Shepherd, we thought your plan of perforation had some very decided advantages; but the more we consider it, the more we are convinced that nothing is gained; but, on the contrary, there is an attendant loss. You have longer perforations, it is true. Those in our zinc are very nearly $\frac{9}{16}$ of an inch long. Yours are $\frac{11}{16}$, making them about an eighth of an inch longer. There may be some advantage in lengthening the openings; but when ordinary perforations are long enough to admit worker bees, why make them any longer? The short perforations might go a great way toward keeping a good long queen from going above, whereas the longer ones might admit her, if she were a slender one. You say your zinc certainly gives more openings to the same amount of space. By laying a strip of your zinc upon a strip of ours, we find that there are more perforations in the same space in ours. If your perforations were the same length, it would make about an equal number of holes.—Another disadvantage, as it seems to us, in your plan, is, that the openings take too much space between the break-joint slats. This would reduce the latter, on $1\frac{3}{4}$ spacing of the frames, down to $\frac{3}{4}$; then if you allow for necessary depth of saw-kerf there will be little solid wood ($\frac{3}{8}$) left.—The perforations can be made about as easily on one plan as on the other. Those having hand-made machines, or machines which make a single perforation at a time, can very easily perforate the zinc in the manner shown, by simply changing the feed.

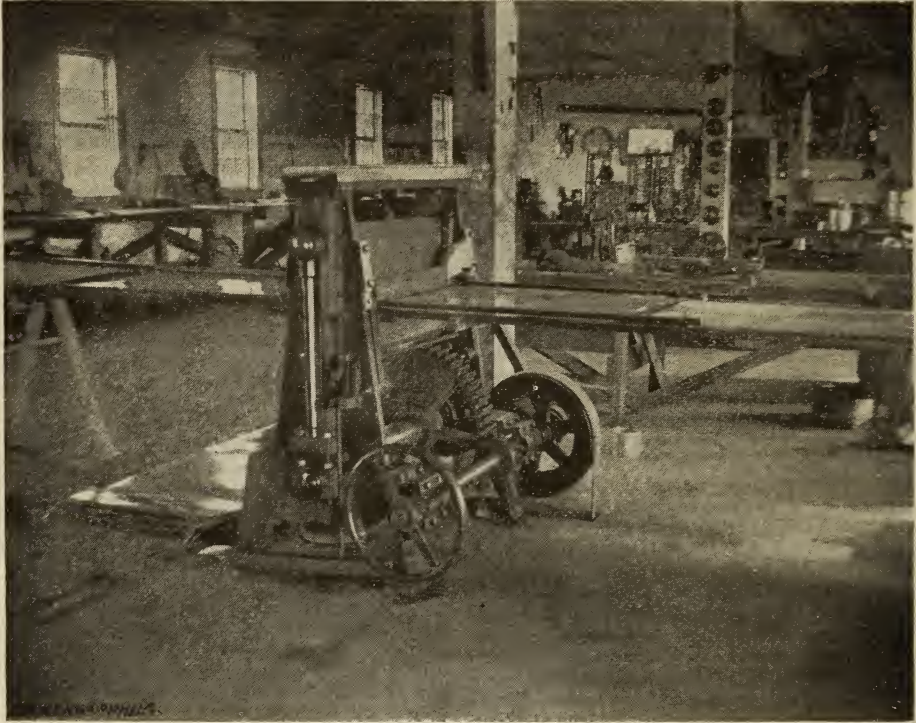
We should be glad to know what Dr. Tinker would have to say upon this method of perforating.

OUR TIN-SHOP.

PERFORATING MACHINE, ETC.

LET'S see. We have given our readers a view of our factory, a glimpse into our saw-room, and one of our office. We now take pleasure in giving you a photographic view of our tinning apartment. The picture is an exact reproduction by the Ives process, and, of course, every thing appears just as it did when photographed, which was one afternoon immediately after shutting down. The view shows perhaps a little over one-half the room. Our tin-shop, including paint-shop, is one spacious apartment 44 x 96

regular intervals. A foot-treadle, shown in the foreground, can be so operated as to throw on or off the power at will. If a punch should happen to drop out, as it did on one occasion, or something else should get out of order, the machine can be instantly stopped, and thus avoid an expensive breakdown. A man stations himself in the rear, picks up a sheet of zinc, 28 x 96 inches, from the floor, and places it on the table. He then slides the two ratchet-bars back far enough to fasten the ends of the zinc to them. A pressure of his foot upon the treadle sets the machine to perforating. At every chank of the great jaw, 70 little oblong pieces of metal drop down into a



OUR TIN-SHOP, WITH THE ZINC-PERFORATING MACHINE IN THE FOREGROUND.

feet, and in it are something over 40 tinning-machines.

"What do you call this machine just before us?" you ask.

"Why, that is our new zinc-perforating machine." Unfortunately, the engine has just shut down; but a sheet of zinc has been passed half way through. The balance-wheel is connected by a belt to a pulley below. The two sets of cog-wheels, in connection with the connecting-rods, as you will readily perceive, give immense power to the punches, 70 in number, inserted in the sliding carriage. Lying on the front platform, and on either side, are two ratchet-bars. A couple of dogs, operating upon these, cause the zinc (to which the bars are attached) to be fed through the machine at

keg. When several kegs are full they are sold with their contents to junk dealers, who gladly pay us enough for such scrap zinc to fully pay for the time of a man and the machine for perforating the sheets. We are thus enabled to put the price of perforated zinc down to nearly the cost of the raw unperforated metal.

The capacity of the machine is something over a thousand feet of metal per day; and so great has been the call for it that we have sold during the past year about 30 casks of zinc, and our past trade has been such that we feel warranted in believing that we shall sell very nearly double that amount in the near future.

We have given you these facts in order that you may get some idea of the demands

of bee-keepers for perforated metal. Where, a few years ago, we sold our tens of square feet, we now sell our thousands. The question is often asked, "Is the zinc practicable, and is it going to be of value to bee-keepers in working for comb or extracted honey?" If its large sales mean any thing, it would seem that there are some bee-keepers at least who regard it as of great practical utility.

But, what are these other implements which we see? Those are tinnerns' tools and machines, such as you will find in a first-class well-equipped tinning establishment. Indeed, in order to turn out and supply the demands of bee-keepers for the various articles made of tin, it is necessary to have such an equipment. We find in looking over our books that we sell from 800 to 900 extractors, from 12,000 to 18,000 smokers, from 1200 to 1500 square 60-lb. cans, and every thing else in proportion, such as tin receptacles for holding honey, besides a great variety of other implements of use in apiculture, which can not here be described. Without tinnerns and tin-shops, bee-keepers would have to dispense with a great many useful appliances connected with the pursuit.

THE COMMON HOUSE-FLY.

PROF. COOK TELLS US OF THIS FAMILIAR ACQUAINTANCE OF OURS.

MR. CHARLES SITTS, Brosie Corners, New York, requests that I write up the history of the common house-fly, for GLEANINGS. I do not wonder that any one should feel an interest in an insect that forms such an important factor in our domestic affairs as does this insect. It eats our pudding with us, and even out of the same dish. It daintily sips not only of our tea, but of the cream and the sugar that season it. No wonder the great Swede, Linnæus, named it *Musca domestica*. It rooms with us, eats with us, drinks with us, and any one accustomed to take afternoon naps would be glad if it would only sleep with us.

This fly is too well known to need description. It belongs to the order *Diptera*, as it has two wings, suctorial mouth-parts—flies and mosquitoes stab and suck but do not bite—and passes through complete transformations. By this last we mean that the first stage—maggot—is not at all like the succeeding stages of the insect. It belongs to the family *Muscidae*. Such insects have short antennæ, with a full plume on the last joint, and heavy short bodies. This fly hibernates in winter as a fly. Fortunately, most of them never wake to life in the spring; but enough of them survive to make things lively about August and September. The house-fly lays more than 100 whitish elongated eggs. These are laid in horse manure, on which the maggots feed. The eggs hatch in about twenty-four hours. The larva, or maggot, looks very much and is very much like that of the meat-fly, or blow-fly, with which all are doubtless familiar. When fully grown it is from one-fourth to four-tenths of an inch long, and is about one week in getting its full growth.

This fly, like many others, pupates in its last larval skin. It is rounded and seed-like, as a pupa.

Such pupæ are called puporiums. The pupa state lasts about a week. We now see why these flies become pretty numerous along in dog-days. Each female lays more than one hundred eggs; and the time from egg-laying to maturity is only about two weeks. Most of us have studied geometrical progression. Here we see it illustrated. Suppose one fly commenced "to multiply and replenish the earth" about June 1st. June 15th, if all lived, would give 150. Suppose 75 of these are misses. July 1st would give us, supposing no cruel wasp or other untoward circumstance to interfere, 11,250 flies. Suppose 5625 of these are females. We might have, July 15, 843,750 flies. For fear of bad dreams, I will not calculate what might be by September 15th. Some of us who have some time stopped at third-rate hotels quite understand it. From what I have said, it is easy to see how that a horse-stable near the house is favorable to the fly nuisance. Slops about the wood-shed, of course, attract flies. So the neat tidy housewife is less tormented than one not so blessed with this kinship to godliness.

We provide in three ways against these pestiferous house-flies. First, we have screens to all our windows, and to such doors as are much used, especially the outside doors to kitchen and dining-room. The screens to the kitchen windows are full length, so the windows can be opened either from above or below. We believe in fresh air; and with this arrangement we get it. Secondly, the screen to the pantry window, to each of the dining-room windows, and to one window of each of the other rooms, is hinged at the top to the upper sash. Thus by darkening all the other windows, the flies alight on this hinged screen. We now push the screen quickly out at the bottom, brush rapidly with a palm-leaf fan, and, lo! the flies are all outside the window.

Thirdly, in case the flies get too thick we use pyrethrum, or, better, California pyrethrum, or buhach. Toward night we try to attract all the flies into the kitchen by darkening the other rooms, and placing odorous sweets, exposed in that room. At ten o'clock—bed time—we scatter, by means of a ten-cent bellows, a little of the powder into the room. The next morning the flies are dead, or partially paralyzed, on the kitchen floor, and are swept up and cremated in the kitchen stove before any revive. Mrs. Cook prefers the hinged screens, in the main, as too free use of the pyrethrum does spread a fine dust on the furniture, which is not desirable. A. J. COOK.

Agricultural College, Mich.

Friend Cook, I am exceedingly obliged to Mr. Sitts and yourself. One needs, however, to go to California to find house-flies in perfection. There is not any winter there to kill them, and so they just keep on in that geometrical rate of progression of which you have been speaking—that is, unless the careful housewife makes too vehement a protest, or unless somebody decides that prevention is better than cure, and stops the progression. Now, I want permission to introduce a very disagreeable subject, and I do not know any way to tell it without having some of the friends *feel* like holding their noses, even if they decide not to do it. I am sure you are right in saying that flies are bred around stables, for at one time our printers used to set type close

to livery-stables, and the flies were not only numerous, but they were mean and low-lived. I think, however, the stables could be managed so as to breed fewer flies. When I was a small boy I sometimes used to neglect cleaning the stables, when father was gone, until the manure became full of maggots. These were probably, as you state it, the larvæ and pupæ of the house-fly. The chickens, however, used to follow me so that there were not so many flies raised after all, if I cleaned the stables in season. I had learned in my childhood, also, that flies came out of manure by some process, for I have seen them crawl out by the hundreds; but I made up my mind at the time that there were different kinds of flies that lived in the manure. Now, then, comes in the place for you to hold your noses. In many out-buildings, where the excavation is very shallow, and the contents of the vault are exposed to sunlight, these same larvæ and pupæ can be seen by the—millions, I was going to say; and the flies go straight from these revolting and disagreeable places directly to the kitchen and dining-room; and I have wondered whether they did not carry typhoid fever along with them. Dry dust, peat, or properly arranged out-buildings, will, if I am correct, entirely stop the hatching of flies around these places; and I feel sure that you agree with me, that much might be done to abate the fly nuisance by prevention in the way I have suggested. Now, friend Cook, please tell me if I am not right about it. Our shorthand writer asks if lime, copperas, or some other chemical, will not carry death and destruction to them as well as sweeten the premises. It is a matter of such vital importance, that we can well afford to take a little space for it. Is not prevention better and cheaper than pyrethrum?

THOMAS G. NEWMAN.

BIOGRAPHICAL SKETCH BY DR. C. C. MILLER.

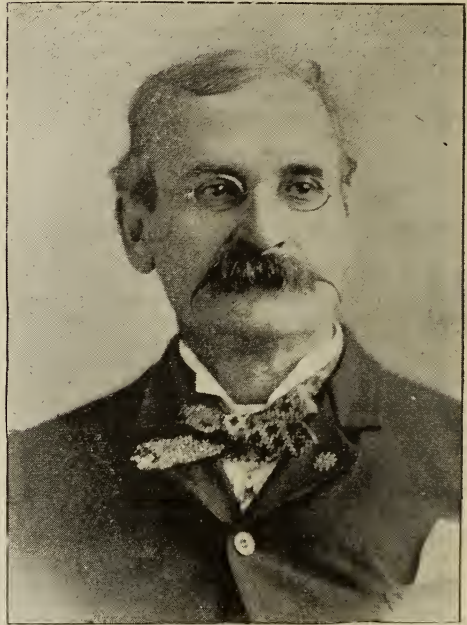
FOR fifteen years the *American Bee Journal* has remained under the management of one man; and, aside from being ably edited, its general make-up and clean typographical appearance impress one strongly, that, somewhere connected with it, is a man who is well up in the art preservative of all arts. The secret of it is, that Thomas Gabriel Newman, its proprietor, is himself a thorough practical printer. Born near Bridgewater, in Southwestern England, Sept. 26, 1833, he was left fatherless at ten years of age, with three older brothers and a sister, the mother being a penniless widow by reason of the father's endorsing for a large sum.

The boys were all put out to work to help support the family. Thomas G. chose the trade of printer and book-binder, serving an apprenticeship of seven years, and learning thoroughly every inch of the business from top to bottom, in both branches.

Early in 1854 he came to Rochester, N. Y., where he had relatives; and before noon of the day of his arrival he secured a permanent situation in the job-room of the *American*. Within two months he took the position of assistant foreman on the

Rochester Democrat, then the leading Republican paper of Western New York. Later on he spent seven years editing and publishing a religious paper, called the "Bible Expositor and Millennial Harbinger," in New York, and published a score or more of theological works, some written by himself. In 1864 he moved it to Illinois, sold out the business, and, for a "rest," took his family to England. Returning in 1869 he located at Cedar Rapids, Iowa, where he published and edited its first daily paper. In 1872 he sold this and removed to Chicago, where he embarked in the business of publishing *The Illustrated Journal*, a literary serial printed in the highest style of the art, and magnificently embellished. The panic of 1873 ruined this luxury, bringing upon him a loss of over \$20,000.

In 1873 a friend introduced him to the Rev. W. F. Clarke, who wanted to dispose of his interest in the *American Bee Journal*, which interest was one-half,



THOMAS G. NEWMAN.

subject to an unpaid contract. This he bought, and afterward the interests of F. Grabbe and Geo. Wagner, thus becoming sole proprietor. For a man not afflicted with the bee-fever, in cold blood to pay more than \$2000 for the simple "good will" of a paper with no printing-office or supplies of any kind, shows an unbounded confidence in the future of bee-journalism. Few men under the same circumstances would have achieved his success. For three years he employed successively as editors, Rev. W. F. Clarke, Mrs. E. S. Tupper, and Dr. C. C. Miller, meanwhile applying himself to the study and practice of bee culture, increasing his apiary from three colonies, purchased for experimental manipulation, to more than 100 colonies in 1879, when he disposed of them because troublesome to surrounding stores. For the past 12 years he has been sole editor, having called to his assistance the

most successful honey-producers of the continent. With a positive dislike for financial transactions, he is fortunate in his son, Alfred H., who has ability in that direction. Besides this son he has two daughters, all married, and five grandchildren.

In 1879 he went to Europe, at his own expense, as American representative to the various bee-keepers' societies, and attended conventions in England, France, Italy, Austria, Germany, etc., and was awarded several gold medals for exhibitions of American apianian implements. He has been elected an honorary member of 14 bee-keepers' associations, and is also life member of the North American Bee-Keepers' Society (of which he was twice elected president), and treasurer of the Northwestern Bee-Keepers' Association.

He has been twice elected Grand Commander of Illinois of the "American Legion of Honor," and is an officer of some ten different societies in Chicago, social, fraternal, insurance, etc., and spends much time in visiting the sick and relieving the distress of those in fraternal and social relations with him, thus fulfilling the injunctions of the Book of all books, of which he is a diligent student.

In 1885 he was elected the first manager of the National Bee-Keepers' Union, which, under his management, has successfully defended a number of bee-keepers in suits at law brought against them. His successive re-election each year gives evidence of the satisfactory manner in which he has performed the duties of his office.

In no one thing has friend Newman shown the persistence with which he follows up any matter he undertakes, more than in his fight against adulteration, and in connection with it what he so constantly calls the "Wiley lie." Prof. Wiley, with all the weight of his official position under government, perpetrated the "scientific pleasantries" that comb honey was manufactured without the aid of bees. Far and near it was copied by the papers, the professor looking on complacently at the mischief he had wrought, without offering a word to stop its course. Mr. Newman demanded a retraction, with no success, for a long time, but he kept up the warfare, denouncing the falsehood with ever-increasing vigor, using such strong language, and such bitter denunciations that one could hardly withhold sympathy for the poor professor, so mercilessly belabored. But it is probable that nothing short of such vigorous language would have wrung from Prof. W. a tardy denial of the truth of his statement, and a mingled attempt at apology and self-justification.

Notwithstanding the use of vigorous language on the printed page, in his attacks upon that which he deems unjust or false, in personal intercourse friend Newman is always the courteous gentleman. Hardly up to medium height, he is of strong build, and of active temperament. In convention he is a good presiding officer, and an easy speaker, sometimes rising to flights of eloquence on themes which, treated by others, would be but commonplace.

Let us all heartily join in the wish that Thomas G. Newman may long be continued at the helm of the good old *American Bee Journal*.

Marengo, Ill., Oct. 20, 1888.

C. C. MILLER.

In addition to the above I will say that my acquaintance with the subject of this sketch began when friend Newman first assumed the editorship of the *American Bee*

Journal. A good many things were in rather bad shape when he took hold of it, if I am correct, and I was forced to admire the courteous and gentlemanly way in which he commenced to put things into shape. Any one who can not get along with friend Newman in business matters, is certainly very hard to please, unless, indeed, it is one of those queer individuals who prefer to have no sort of understanding or settlement either. During our long business acquaintance, very seldom if ever has any thing occurred to prevent a regular settlement of accounts at the end of every thirty days; and in this respect friend Newman is a good model for bee-keepers at large; for my experience seems to indicate that the whole bee-keeping world, as a rule, has a dislike for regular, systematic ways in finances; that is, for having a regular settling-up and perfect understanding *the first of every month*. Things are received that are not satisfactory, perhaps not as ordered; but some of the brethren will wait a year and then complain. It is an old adage, that "two of a trade can never agree;" and I am sorry to say that at one time it seemed to bid fair to be the rule among bee-journals. May God forbid that it should ever be so any more. Friend Newman has always stood ready to go more than half way toward amicable relations toward all the bee-journals published, so far as I know.

CONVENTIONS ET BEE-JOURNALS.

SHOULD THEY AMOUNT TO ONE AND THE SAME THING? IF NOT, WHY NOT?

ON page 933 is an item headed "Conventions versus Bee-Journals." Allow me to change *versus* to *et*, because there is no conflict. "Bee-journals fill a place that conventions can not fill, and it is equally true that conventions fill a place that bee-journals can not fill." Quite correct. "The information then furnished by the bee-journals will have an added interest" (after you've attended a convention), "and you can read very much more understandingly." True also; but with threefold emphasis is it true that you can hear the discussions at a convention understandingly after you have thoroughly read up all that is said in the bee-journals and in the bee-books. I have heard men ask questions in a convention that showed they had a poor understanding of what was going on, which questions would have been readily answered by any one who had done even a small amount of reading beforehand.

Although bee-journals and conventions are different in their uses, and both needed, I do not believe there is any great harm in trying to have a bee-journal approach somewhat in character to a convention. The familiar talk and friendly discussion, getting the views of a number on the same point—such things make the printed page quite a little like meeting our fellows face to face. So, as far as possible, I like to have every bee-journal that arrives seem like a convention; and if we *could* have one that should have all the advantages of a convention, with only the ordinary cost of the paper, it would be a great gain. But to have a convention modeled after a bee-journal is another

affair altogether; and if a convention *could* be made *just like* a bee-journal, that would be the end of it, for the expense of attendance would rule it out of existence. I am afraid too many conventions try to take the place of the bee-journals, and to just so great an extent lessen their value.

It might be a good thing to find out what are the distinctive characteristics of a convention that give to it its peculiar value, and then try to make the most of them. The warm grasp of the hand as we meet our brethren, and the multiplied opportunities for friendly intercourse in pairs or little groups at various times outside of the regular sessions—these no one will undervalue who has ever had the privilege of enjoying them. No printed page can give us these. If nothing more were to be had at a convention it would pay to go some little distance to attend one; but I suspect the attendance would be rather slim. The attendance at the regular sessions is, after all, that for which we go to a convention. And what is it that gives special value to these regular sessions? The time is chiefly taken up with essays and discussions. Which of these should have the preponderance? Which is more valuable, or do they stand on an equality? Could the time be wholly taken up with one to the exclusion of the other? Undoubtedly a session might be entirely taken up with essays, or entirely with discussions. I have known both kinds. How about having all essays? My good friend Prof. Cook will say that well-matured thoughts are given in an essay—hence more valuable—and he rejoices in the thought that some of his friends are coming over to his views. I wonder if he didn't misunderstand them. Well, I admit that a well-prepared essay from one who is accustomed to putting his thoughts on paper may be more carefully planned, possibly more condensed, than would be an impromptu talk. Even if every member present were capable of this, would it be advisable to have the time all taken up with essays? Where is the difference between essays at a convention and the same essays in a bee-journal? Simply that, in the latter case, you read the essay for yourself, and in the former you listen to some one else reading it aloud. If every essay-writer were a fine reader, it is possible that one might do better to listen to the reading than to read for himself. Even then there are some advantages in the latter case, for often one wants to stop and think over a certain point, or perhaps refer again to something passed over. But it is lamentably true that not one writer in ten can read aloud an essay in an acceptable manner, in which case there is nothing gained by having the convention usurp the place of the bee-journal. In case all were the best of readers, would the advantage of hearing the essays read by good readers balance the extra expense? For, be it remembered, the average cost of attending a convention exceeds many times the cost of all the valuable essays published in one of our best bee-papers in a whole year. So it seems to me we shall do better to keep each one at its best work—the paper publishing essays, and the convention having live discussions.

I know there is more to be said on both sides, and I know that all do not agree with me. I think it possible, too, that some may think it hardly worth while to fill the columns of our journals by discussing such matters. But thousands of dollars are spent every year on conventions, and it surely is

important for us to discuss how we may get the most good out of them.

C. C. MILLER.

Marengo, Ill.

Friend M., I think I agree with you exactly; that is, I shall decide that I agree until somebody suggests something that I have not thought of, and convinces me that I don't; and when we attend conventions, let us keep the matter in mind.

THE COMMON HORN-TAIL.

WHY WE SHOULD SET OUT LINDENS INSTEAD OF MAPLES.

MR. W. FULMEN sends me two specimens of our common horn-tail, *Tremex Columba*, of which he writes: "I found them yesterday busily employed stinging a Norway maple. I suppose they were laying their eggs. The one had his (her, of course) instrument inserted at least half an inch in the hard wood. Please be so kind as to give name and habits, in GLEANINGS."

This common horn-tail is nearly cylindrical, about the size of a lead-pencil, and $1\frac{1}{2}$ inches long.



TREMEX, OR THE COMMON HORN-TAIL.

The figure shows the form nicely. The colors are black, dark brown, and yellowish brown, each shown in the figure by shading. The yellowish brown is lightest; the black, darkest. The name, horn-tail, is significant, as will be seen by the figure. This horn-tail is really an auger, by use of which the insect can bore into hardest wood. This auger reaches on the under side of the abdomen more than half way to the thorax, so it is more than twice as long as it appears when viewed from the back. Thus the insect, when boring, can bear its weight on this auger. It is interesting to see them engaged in this work. As Mr. Fulmen suggests, they bore to lay their eggs. The auger, like the sting of a bee, consists of three pieces—the awl, or central piece, the auger proper, and two side pieces, which are doubtless guides or supports to the awl. The male, of course, has not this auger, and is more yellowish.

This horn-tail lays its eggs in all maples, in oak, birch, hickory, and beech. Harris says it also works on elm and buttonwood. Frequently the insect drives its auger in so deeply that it can not draw it out. I have thus caught them hanging to both beech and maple.

The larva which hatches from the eggs laid by these horn-tails is yellowish white. It is nearly two inches long, when full grown. These grubs often do much harm to our maples, as I mention in the work, "Maple Sugar and the Sugar-Bush." This is an

other reason for planting lindens for shade, instead of maples. We should suppose that such insects, living and feeding in sound hard wood, would be safe from all foes, but this is not so. We have at least two ichneumon flies that bore into trees harboring these horn-tail larvae, and deposit their eggs in the tissues of the borers. Thus even these borers are not safe, but often become victims to ichneumon parasites. How does the ichneumon fly know where to bore? How can she know that, deep in the hard wood, the borer is working? I surmise that, by walking up the tree, she feels a tremor caused by the gnawing of the larva within. It hardly seems possible that scent can guide her. Odors could hardly penetrate solid wood. A. J. Cook.

Agricultural College, Mich.

But, friend Cook, there is just one thing I want to know about these augers: To make an auger bore, it must rotate; but the machinery in question, however, can not well rotate. How, then, does this auger work? Can't you give us a drawing of it? In our description of bee-stings the matter was lightly touched; and inasmuch as it comes in the line of the way in which bees bore holes with their sting, we think it might be profitable to have it fully described, with illustrations, in a bee-journal.

CAGING QUEENS JUST BEFORE THE HONEY-FLOW.

E. FRANCE SUGGESTS A VERY IMPORTANT MATTER.

THE bee-keeper's summer is past, the harvest is gathered, and what is the result of the season's labor? All who read the bee-papers know that the honey crop was small this year, and smaller last year. I for one don't expect a full crop next year, owing to the dry weather during August and September of this season in our locality. But after all, I individually am thankful for the small crop that we did get, and my faith in the bee-business is still good. I think there are better times coming, when we shall get our reward if we stick to the bees. Perhaps it is a good thing for us to have short crops for one or two years. The old surplus will all be worked off, prices will be kept up, and bee-keepers will be made to understand that they are dependent upon some higher power than ourselves to secure a bountiful harvest. No matter how much skill the apiarist may possess, the bees can not gather honey unless it is supplied for them to gather. The supply is beyond our control. But after all, the skilled apiarist can manage and manipulate his bees so there will be a great difference in results, providing there is a flow of honey at any time during the season, of some sort. With us we have had good honey seasons for a long term of years, and so we were able to take a little over 100 lbs. per colony of surplus until the year 1887, when we got only 12 lbs. per colony. Owing to the dry weather of 1886, the clover was nearly all killed. The year 1887 was a dry year also, but we had some rain in the fall. A great deal of clover came up from seed, but this was not advanced far enough to give us a crop of honey this year, 1888; accordingly all the honey we got last year, 1887, and this year, 1888, came from basswood. Last year we obtained 12 lbs., but not half as much as we should have se-

cured had we managed our bees as we could have done. We had 410 colonies, and obtained 4920 lbs., all from basswood, which was the only thing during the season from which it was possible to obtain any surplus. The same is likewise true of this year.

How could we have done better? I will try to explain the situation a little, and then tell how we could have obtained more honey. First, remember we worked for extracted honey. The year 1886 was a good honey season, and we secured a large crop of clover honey before the dry weather set in. Then the dry weather did not affect the basswood, so we got a big crop of basswood. We let the bees fill up their hives with basswood honey to winter on, as we usually do. After that there was honeydew on which the bees lived until winter, so their combs were loaded with honey. When winter set in they had enough honey to eat for their own use, and to feed their brood until the basswood came the next season. When the basswood opened they had the most of the honey used up, and all the combs were full of brood from top to bottom, and no place to put any honey. All they could do was to fill the cells as fast as the brood hatched. The basswood lasted 12 days, and it took 21 days to hatch out all of the brood. It was positively necessary to leave honey in those combs to winter the bees. Could we safely take out any? Yes, we could extract for a week, and give them time to fill the combs that we emptied; and if we whirled the combs pretty hard, perhaps we could throw out some of the younger brood and give the bees a chance to fill their places with honey. We concluded to do that, and did do it; but as it took a week to go over the bees we got but very little honey the first three or four days. We got out a great deal of young brood, and that gave more room to store honey. Then as the older brood hatched, that gave room to store honey. By the time the basswood flow came to an end, the bees had enough honey stored to winter on, besides the little we took out.

Now, I am aware that I have introduced a strange idea in throwing out brood on purpose to benefit the bees; but under the circumstances it was the best thing we could do, as the hives were crowded full of bees. The combs were full of brood, and no place to store honey. If we had had on hand a large quantity of empty combs, then we could have made good use of them; but we did not have them, and so we had to do the very best we could. How could we have done better, and got more honey? By simply caging the queens ten days before the basswood flow commenced; then the brood would have been about half hatched out by the time the flow commenced, and all would have been hatched by the time the basswood ceased. The queens could then have been liberated. The bees would not have tried to swarm when the queens were caged. All queen-cells should be destroyed, and ten days from that time they should be destroyed again. There would then not be any attempt to swarm until the queens were liberated and some brood started, and not then if the honey-flow were over. Why did we not do it, and secure more honey? We did not think of it in time, as we had never been in the same fix before. But we have been partially in the same boat this year again. We started in this season with 431 colonies, and had to feed about 500 lbs. in the spring to get the bees through to clover, from which they gathered just

about enough to keep them in good breeding condition. We saw that there would be a fair yield of honey from basswood, so, as nearly as we could guess, about ten days before the basswood opened we caged 150 queens, to test our last year's theory. The result was, we got 11,830 lbs. of honey—about 27½ lbs. average, and I should think that ¾ of that honey came from the 150 colonies where the queens were caged. Remember, our average last year was 12 lbs. We came to the conclusion that we should cage queens again to increase our honey crop. We think it is a good thing if it is rightly managed, any year.

The cages we used were made of wire cloth, about 3 inches long, ¾ inch wide, and ¾ thick. One end was plugged with a wooden stopper, ¼ inch long; the other end was just pinched together after the queen was in the cage. The cage containing the queen was hung by a fine wire between two combs in the hive from which she was taken. The bees in the hives feed the queens in the cages. Out of the 150 queens so caged, three died; 147 were alive, and in good laying condition. Some of the cages had eggs in the lower end, ¼ inch deep in the bulk—more than the size of the queen. I don't know whether the bees made any use of the eggs or not, as we kept one or two combs of young brood in the hives, from other colonies; but I know that bees will sometimes take eggs from a caged queen, and raise queens from them. I don't think they will use them to raise workers to any extent. How long did we keep the queens caged? About 20 days—10 days before the basswood opened, and 10 days after. We destroyed all queen-cells when we caged the queens, and again in 10 days we destroyed all queen-cells. After the queens had been liberated about a week we examined all the bees we had, to see if all had laying queens, and found all the queens that had been caged were laying nicely. Now, I don't want it understood that I advocate the caging of queens, except under certain conditions. When one has all the bees he wishes to keep, and wishes to prevent swarming, then he should cage the queen—after the colony is very strong and about ready to swarm. Of course, the queen-cells must all be destroyed. We have often caged a few queens, but never as many in one season as we did this last one.

E. FRANCE.

Platteville, Wis., Dec. 15, 1888.

The idea of caging queens at a certain time in order to increase the honey-yield, comb as well as extracted, has been recommended and practiced to some extent for a good many years. Some have claimed that caging queens would put a stop to honey-gathering, or, at least, to a certain extent; but my experience has been that, where the queen is removed entirely, the bees ceased work. Leaving them caged in the hive as you have done, however, would probably make little if any difference with their activity as honey-gatherers. Now, in case there had been an unexpected flow of late fall honey, might not your experiment have resulted in a big loss? As our business has been for years selling bees by the pound, it has been a hard matter for us to accept the idea of repressing brood-rearing in any way; but as you state it, it seems to me very likely there might be a positive gain in the amount of honey secured, and a positive

saving in regard to the amount of sugar that must be bought for winter. We should be glad to hear of the experiments of others in this matter.

RAMBLE NO. 10 CONTINUED.

A NOVEL METHOD OF PEDDLING HONEY.

UNCLE JOHN runs his colonies for the production of comb honey. His son Cyrus, not having much love for the busy bees, attends to the farm, and makes gardening a specialty. The products of the garden and the apiary find ready sale at hotels and to the boarders themselves; for about 20 miles from the head of the lake, nearly every point and island has a hotel or several cottages upon it. For instance, Ripley's Point has a hotel—Horicon Lodge—and a dozen cottages. During the camping season these must be supplied with vegetables, etc. Mr. Cyrus A. supplied a few of these resorts, at first with a row-boat; but seeing an opening for a little expansion in the business he fitted up a boat with a kerosene-engine. This pretty little craft will carry 17 persons, or over a ton of supplies. Every Wednesday and Saturday the boat is loaded with a miscellaneous cargo of potatoes, onions, celery, and every thing from the garden; and last, but not least, a few crates of honey. The voyage is then made from point to point, and the entire day is spent in disposing of the cargo.



PEDDLING HONEY WITH A STEAMER.

Comb honey finds ready sale at 16 cts. per lb. Mr. A. was selling his honey off nicely at 15 and 16 cts., when, upon his next trip, he found the market demoralized, and the bottom knocked clean out by an outsider running in a load of honey and selling it for 10 or 12 cents per lb. In consequence he is strongly in favor of co-operation, or the buying of all of these stray cheap lots, or, what would be better, the purchase of their entire stock of bees.

Extracted honey can not be sold at any price, owing to suspicion of adulteration. Even comb honey in regularly filled sections is looked upon with suspicion; and city people, before purchasing, want to prod a jack-knife into the center of it to test it.

While extracted honey can not be sold, there is a call for maple syrup, and it will be purchased and greedily eaten, and hardly a word be said about its purity; and we all know that maple syrup is adulterated as much if not more than honey. Is honey held more in suspicion because the busy bee and the production of honey calls forth sensational lies, and syrup free from it, because the noble maple can not be so much lied about? Another question that is beyond my solving is this: Why will people use some articles of diet that are grossly adulterated, and know it, and refuse articles like honey, against which they have only a remote sus-

picion? The little steamer is, however, on its mission every summer, and we hope it will exert an educating influence on all city people who purchase what it pleases them to term wild honey?

On Tuesday our visit drew to a close. We cast lingering glances at old Buck Mountain, with its huckleberry paradise; at Shelving Rock, with its rattlesnake dens; at Tongue Mountain, noted for deer and the deer-slayers; at the placid waters into whose pure depths the eye can penetrate 20 or 30 feet; the islands, fairylike in their beauty; the boats, with their suggestions of pleasure and exercise; we could scarcely tear ourselves away from so many attractions, and the Rambler would willingly rest from his wanderings, and build a log hut under the sheltering trees, and, *Crusoe* like, spend his days in hunting and fishing.

Our last repast in Camp Andrews was a picked-up dinner. The most prominent object on the table was the doctor's medicine-box, with 500 bottles, more or less. It was a terrible-looking instrument of destruction.

The only accident of note was a thrilling adventure of Mr. Lockhart, who rushed in one dark night, averring that he had been knocked down by a burglar. We prospected with lanterns, and found he had tumbled over a big boulder. It is a mystery how people's imagination will run away with them. Another was a skillful star scene, indulged in by the Rambler. He tried, and succeeded in sitting down in the lake.

The pleasures of the visit will be long remembered; and the many kind favors bestowed on the Rambler by his fellow-campers and members of the family, I trust can some time be returned; and that other bee-keepers can some time enjoy a week at Lake George is the earnest wish of the RAMBLER.

LOT'S WIFE.

DEACON SMITH DISCOURSES ON THE ELEMENTS
NECESSARY TO SUCCESS IN BUSINESS.

DEACON SMITH was on the winning side in politics this year. He is therefore more loquacious than ever, and more genial, if that were possible. He has spent several evenings at our house since election. He brings "Mirandy," and Mirandy brings her knitting-work. Our apple-barrel holds out yet, and the bee-journals have not lost their interest, although truth compels me to state that they were only secondary during the heated campaign.

The deacon's teeth are a little poor; but our Wealthies are in their prime now, and he is obliged to acknowledge that they are "most as good as the Greenings of York State."

The last evening he spent here, the deacon got to talking about the elements necessary to success in business.

"Now, there was Lot's wife," said he; "what a shining example she was of how not to do it!—not that I blame the poor tired woman for looking back upon the scenes of her childhood. Anybody could have forgiven her for that. But Moses was too busy looking after the wayward children of Israel to give us her full history, and you see she wasn't worthy of a page or two in the Biblical record. He only mentions her, as the preacher does the text, to give point to her instability of character. Did you

ever think of it? She hadn't even a name in the book. There's Sarah and Rebekah and Esther and Ruth, and a host of other noble women who have blessed the earth ever since they lived. But she was Lot's wife—that's all. If she had been a woman of character, do you think she would have been consigned to everlasting nothingness in that kind of style? Even Jezebel got more distinction than that.

"Just imagine what a rattling there would be among the dry bones if Mirandy should die, and I should put up a respectable monument to her memory with this inscription: 'The late Mrs. Smith,' instead of saying, '*Hic jacet* (here lie) the mortal remains of Amelia Mirandy Sunnyweather, the late consort and worthy helpmeet of Uriah Smith, a woman who never turned her back on a duty unperformed.'

"If you will read between the lines you will discover that Lot's wife was one of those weak-minded, changeable persons who never have an object in life, and are blown about by every wind of doctrine. When Lot started from Sodom she thought she loved him above every thing else, and she'd share her fortunes with him. But when she got tired, and had blistered her feet on the sand, she thought, 'What a fool Lot was to believe what those men told him! I guess I'll go back.' So she turned back to the luxurious city she had left, thinking perhaps that her husband would soon follow suit. You know the rest.

"Now, that's the trouble with a great many men in this world. They don't know what they are here for. They haven't any purpose. Like a lost dog they will follow the first emigrant wagon that comes along, if the driver only whistles.

"Perhaps they are farming. Things haven't gone first rate. The price of hogs has gone down, and cholera specific has gone up. Along comes a white sail with the magic word 'protected wool' on. The hogs are sold, given away, or run into the sea. They are only swine, any way. But sheep are high. By the time he gets fairly started—has learned how to keep the wolves off by day and the dogs by night, how to save the lambs in spring and the old ones from foot rot in the summer, he discovers that Texas and Australia can raise wool cheaper than he can, and that sheep-raising is not so profitable as he thought. So he sells his sheep at a sacrifice, and invests in booming cattle. It's the same old story—buying at the top and selling at bottom prices. Old age creeps on apace. By the time he has run the gamut of the industries he is ready to vote with Solomon that variety and vexation of spirit is the common experience of the farmer; whereas, if he had stuck to some one thing he might have compelled success.

"There's neighbor Jones. He bought a lot of bees a few years ago when bees were high and honey ditto. He thought that was the highway to wealth and happiness. He put a good deal of money into the business—a good deal more than there was any use of. He didn't know any more about bees than a sand-hill crane does about astronomy. He only soared among the clouds. The first winter he lost heavily. The next summer his profits were so fine he couldn't see them. Last year wasn't much better, but he got a good deal of experience. But he got disgusted with them, and put them all up at auction. I bought the whole outfit for a song. Now, I know there isn't money in bees every year,

They don't make honey. It's got to be in the flowers, or the bees can't get it out, but I'm bound to stick till the Lord sends the early and latter rain, according to promise. It's the only thing to do. You know what Poor Richard used to say: 'A rolling stone gathers no moss.' After a man has got every thing fixed to keep bees, it's the foolishness kind of folly for him to surrender and admit he is licked because there happens to be one or two bad seasons. There's nothing in this world that I know of that is always on the high road to prosperity without work, and sometimes there's a deal of waiting too." Reported by— EUGENE SECOR.

Friend Secor, you are lucky in having Deacon Smith for a neighbor. Don't mind the apples. When he gets a going, just give him plenty of rope, especially if he exhibits as much wisdom as he has in the above. While in California I was greatly impressed with the very idea the Deacon has brought out. When 200 lbs. or more of nice honey was obtained per colony, a few years ago, a great many started in the business. Some of them have held on to the bees for a couple of years; but at the present time a great many are deserting their bees, or are offering to sell them for a mere "song," as you express it. Now, I do not mean that one should keep on devoting his whole time, and making outlays, while the seasons are so unpropitious that there is little or no income. I believe it is prudent to stop outlays, and let the bees stand still while there is nothing in particular to be done with them, keeping a careful watch, of course, that they do not get out of stores and so starve to death. It would be very strange indeed if no more crops of honey were to be secured, such as we had five or ten years ago. If we talk with men in most kinds of business, especially those who raise crops, you will find a good deal of the same state of affairs. It is terribly expensive to learn a trade, and rig up for the profitable working of any kind of business; and he who abandons, as soon as or shortly after he has got ready for business, must expect to do it at a great sacrifice. Work at something else if you choose, while your regular business can not be followed; but do not let things go to ruin, or swap them off hastily.

A GOOD QUESTION.

DO BEES BUILD HEAVIER COMBS AT ONE TIME THAN AT ANOTHER?

AS C. C. Miller had made some observations on the subject as above, we sent the following to him:

Friend Root:—On page 803, you and J. A. Golden fail to understand why bees build heavier comb at some times than at others. I have noticed for several years, that, during a rushing flow of honey at any season, and from whatever source, whether clover, buckwheat, or aster, the comb is invariably thin and light; but when honey comes slowly, the combs are heavier. White clover was almost a total failure here, but buckwheat and asters yielded fairly well. BURDETT HASSETT.

Howard Center, Howard Co., Iowa.

Mr. Miller replies as follows:

I do not know that it is of practical importance to know why and when bees build heavier or lighter comb; still, it is a matter of interest, and a practical bearing may attach to a subject, although such practical bearing may not appear on the surface. I have some doubts as to the cooler weather of fall making bees slower about drawing out wax, thus making the comb heavier. Bees keep up the heat in the cluster, summer or fall; and if the wax is soft enough to be worked, I suspect they will work it thin one time as well as another. But it is not unreasonable to suppose that, like the human family, bees will be more lavish in the use of any article which is plentiful. It is not likely that the secretion of wax is in exact proportion to the amount of nectar gathered daily. Suppose a heavy flood of honey is being gathered. The bees will secrete wax enough to take care of it, and this secretion is a matter of time. It can not be started or stopped in a minute. When they stop gathering honey at night, the manufacture of wax keeps right on through the night; and if a heavy rain should occupy all the afternoon it is likely the same amount of wax will be secreted as if the bees worked in the field all day. And I see no reason, if the bees work all day in the fields, why there should not be just as much wax secreted, whether the field allows a bee to gather a load in 20 or 40 minutes. In other words, there should be no difference in the wax production, whether the bees store two pounds a day or twice as much. But if the wax is secreted, it will be used in some way, and I suspect that bees are likely to build thicker combs if they have a double supply of wax. If this be the case they might be expected to make thicker cell-walls when the harvest begins to wane.

Thinking this matter over last evening I said to myself, "If your theory is true, facts ought to sustain it. Last summer the yield was very slow, and you ought to find very heavy comb." So I got a section of honey out of the cupboard to examine. Sure enough, it appeared to me the cell-walls looked thick; but then, I had no other comb to compare it with. I cut out a cubic inch, as nearly as I could estimate it, and chewed it. The resulting wax I rolled into a round ball, and it measured just about half an inch in diameter. That seemed to me like a good bit of wax; but, as before, I had nothing to compare with. Friend Root, try a cubic inch of honey, perhaps of two or more different samples, and tell us how much wax you get from it. Here is another fact that is confirmatory, so far as it goes:

Last summer the bees made more trouble than I remember ever before, in making bits of white comb where not wanted. In a good many instances they made little sheets of wax arise perpendicularly from the separators, as if trying to increase the width of the separator. They also plugged up crevices as if with propolis, only they used pure white wax. So far as I could judge by looking on, the bees were busy every day; but a total crop of less than a ton from 135 colonies shows that the daily yield must have been small, requiring little wax, and allowing plenty for thick cell-walls and an overplus to be used as bee-glue. By the way, in every lot of bee-glue I think more or less wax will be found on melting.

SIZE OF APIARIES.

The item on page 933, with its comments, "Advantages of Small Apiaries," reminds me that it is not safe to base general conclusions on one or two data. A small apiary "of 12 colonies gave almost enough

surplus to supply the deficiency of "a larger apiary of 60 or 70 colonies. Now, friend Weckesser, the small apiary may have given the surplus just because of the few colonies; but the facts you state by no means prove it. The past summer my Wilson apiary had about three times as many colonies as the Belden apiary; but the *larger* apiary "gave almost enough surplus to supply the deficiency of" the smaller. But that doesn't prove that the larger number made the yield per colony greater. The Wilson apiary probably had a better field to work on, and probably your 12 colonies had a better field than the home apiary. I do think, however, that in general a small apiary will do better than a large one, just because there will be times during the season when the harvest is so light that even a few colonies overstock the locality. But the difference may be so little that I think in general I would not start an out-apiary till my number exceeded 100. So I agree with the comments.

Marengo, Ill.

C. C. MILLER.

Friend Miller, your explanation seems to be the more reasonable one. It is a fact, is it not, that bees do at times secrete more wax than they can profitably use, and that these scales are sometimes found on the bottom-board? Friend Hutchinson avers that, in consequence, too much foundation is used, and that this surplus of wax scales goes to waste. According to your request, we tried two or three samples of honey. As the flow of nectar in California is considered to be very rapid, it is reasonable to suppose that California combs would be lighter than combs to hold an equal capacity made here in the East. We accordingly selected a section of California honey well filled out, and of snowy whiteness. From this we took two cubes of honey. From each the resultant wax made a sphere only a *quarter* of an inch in diameter. Of course, this wax was pressed together into a solid ball. We next selected a section of honey which had been filled out during the last season in our own locality, when the yield of nectar daily was very small. This section was travel-stained, and there was a number of cells not capped over. From this we took a cube of honey, chewed it, and obtained a wax ball *half an inch in diameter*. As will be seen, the diameter of the latter was twice that of one of those from the California honey. Therefore the *volume* of wax would be just about eight times as much. From this it might be argued that bees will use *eight* times as much wax in comb building during a *slow* yield as they will in a *rapid* yield. These proportions may not and probably will not hold true in all cases; but as the experiment can be so easily tested, we hope our readers who are interested in the matter will do so and report the result, noting carefully whether the nectar was coming in rapidly or slowly. Now, friend M., you start out by saying that you do not know that there is any practical importance in this matter; but you intimate that a practical bearing *may* attach to it. Well, it *may* be this: When honey is coming in very *rapidly*, the bees need full sheets of foundation; when it is coming in *slowly*, narrow starters will answer just as well and perhaps better. If this be true, may it not be possible to save foundation, and, con-

sequently, money? Again, if bees do at times build heavier combs than at others, may it not explain why there is sometimes present the objectionable "fishbone," and that at other times it can not be detected?

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

CARRYING BEES INTO THE CELLAR; DOOLITTLE'S AND ROOT'S INSTRUCTIONS OBEYED.

I WISH to thank you and G. M. Doolittle for that article in Nov. 1st GLEANINGS, in reply to my questions on placing bees in the cellar. GLEANINGS arrived here about four o'clock, Nov. 7; and after reading the article referred to I decided to set the bees in at once, as it was looking like rain, the weather previous having been remarkably fine. There were 82 in all, and we carried them in, some before dark and some after, and found no difference. In your remarks you seem to think the bees would be more apt to get out of the hives when the bottoms are removed. Now, if you mean while carrying them, you are wrong; as the bees seem to get confused when they run down and can't find their floor, and very few will fly out of their hives. If you mean that more bees will get out of the hives in the cellar, you are right; but I think we want them to, as, when a bee becomes so weak as to fall from the cluster, it is better out of the hive, as they will sometimes pile up in the bottom and make a very bad smell. I did not place my bees as Doolittle does, as I had not room. I simply placed two scantling about a foot from the ground, and set a row of hives on them, then two more, and so on. I think it would be a good idea to have the scantling supported independently of the hives, so any hive could be removed if necessary.

Alvinston, Ont., Can.

W. E. MORRISON.

SOD HOUSES FOR WINTERING BEES, AND FOR RAISING PLANTS AND CARP.

Please send me some Grand Rapids lettuce. I have a greenhouse, and am raising plants. I have built a water-tank 5 feet deep, 8 feet wide, 32 feet long, in which I have about 400 carp. I have three-fourths of the tank covered with floor, with a good sod house built over it. I have a pipe running into it, with a pipe for the water to escape into a hatching-pond about four rods square. My carp are doing well, and so are my bees. You remember I wrote to you last winter about keeping my bees in a sod house. Well, last spring I thought I would experiment a little, so I built a sod wall, and made spaces in the wall, facing the south, to set the hives in; then I took two boards, a little longer than the spaces, and took old barrel-staves and nailed to the boards for cages. I am well satisfied with the arrangement so far. When I wish to work with a hive I can just remove the cover, as each has a separate one. I have 39 colonies in hives, and one I took from the woods, from a hollow tree.

R. F. LOOMIS.

Indianola, Neb., Nov. 21, 1888.

THE COTTON-TREE OF THE SOUTH A PRODUCER OF HONEY.

In GLEANINGS, June 15, a man in Texas asked you some questions. Among others was this one: "Is the cotton-tree good for honey? You did not know,

but you stated that the cottonwood-tree of the North and West was not a honey-producing tree. The name cotton-tree is a local, or common name only. The proper, or scientific name, is *Paulownia*. It grows as large, or larger, than a big apple-tree, with much the same form. It blooms early in the spring, before any leaves appear, and is remarkably fragrant. One large tree will scent or perfume half a dozen town lots. It is raised principally on account of its strong perfume and dense shade. Its flower resembles a purple Jimson (Jamestown) weed, except it is only half as long. In regard to its being a good honey-producing tree, I can't say any thing further than this: Bees work on it just as fast as they do on an apple-tree in Ohio when in full bloom. But few people here know its right name. I asked a great many before I found out, and Dr. Brantley, one of your subscribers, gave me the true name. The doctor is well posted on nearly every thing, and is one of the best conversationalists I ever met.

Atlanta, Ga., Dec. 17, 1888. JOHN BARFORD.

WATER IN A BEE-CELLAR, AND HOW IT MAY BE SUPPLIED.

I winter most of my bees in the cellar, and generally with very good success. I have just built a cellar especially for the purpose, in which 151 colonies are wintering. They are exceedingly quiet, which I consider the best proof of perfect wintering in a cellar. Having had positive proof of the benefits of water in the cellar several years since, I wanted a living spring in my new cellar; and as we found none while digging it I managed to get a cheap artificial one by digging out at one corner, thus. The small room, or projection to the cellar, takes in my pump-pipe (it is a drive-well iron pump). The supply of water for the cellar is simply the waste which spurts out of the vent-hole in the pipe; and as this well furnishes all the water used by two families, besides several head of stock, there is a large quantity of water which passes out of the pipe into the cellar. The cellar is under a part of the dwelling-house, and the pump is at one end of a porch. It has a stone wall full depth, and is lathed and plastered overhead. The surplus water passes off through a drain. I expect to utilize the little room for milk and butter in warm weather, letting the water pass around the milk-dishes, etc.

O. H. TOWNSEND.

Alamo, Mich., Dec. 11, 1888.

SMALL SECTIONS, AND HOW TO MAKE THEM OUT OF WOOD SEPARATORS.

Having read of the Rambler's troubles with the Harmer 2-oz. section, I will tell him, and others who may be interested, how I made 200 or 300 last spring.

Having bought of you a lot of wood separators I took some of them, cut them into lengths of $7\frac{1}{4}$ inches, and then cut the lengths into strips $\frac{3}{4}$ inch wide, and marked them off like this.



Now take a sharp-pointed knife and cut the cross-lines partly through and you can fold them very easily, and they will fit into the frames all right if cut accurately. In folding I put a drop of glue where the ends meet; but perhaps a bit of well-gummed paper would be better; it certainly would not be so sticky to handle as glue is. I was not very successful in getting them filled, but I think the

trouble mostly was due to there being no honey to gather, as I got but 300 lbs. of comb, and no extracted honey this year. I will try the little sections again this coming summer.

O. G. JOSEPHANS.

Owosso, Mich., Dec. 7, 1888.

HONEY GRANULATING.

I read in GLEANINGS somewhere of the spraying of honey in extracting causing, or at least hastening, granulation, in something the way that stirring sugar syrup when making taffy will cause it to granulate. When the stirring is slight, the granulations may not commence until the taffy is sold, and sometimes several hours afterward. I had practical proof of this fact this fall. When taking off my honey I cut out the unsalable sections and filled a jar with them, to sell in bulk to home customers. After emptying the jar a few days ago, I found the droppings not granulated in the least, while honey of the same kind, extracted at the same time that this was cut out, and though in tight cans, and capped up, was granulated so much it could not be poured out without warming; and some in an open lard-jar was solid, while the droppings from the uncappings in another jar were granulated but little; this was all late honey, mainly from Spanish needle, which does not granulate so readily as clover honey.

B. A. RAPP.

Chillicothe, Mo., Dec. 8, 1888.

FOUL BROOD IN NEW ZEALAND.

The Langstroth hive is the one in use in New Zealand by all advanced bee-keepers, and is found quite sufficient protection without chaff packing, to winter on summer stands, owing to the mildness of our climate. I noticed a report in a late issue of GLEANINGS (July, I think), that foul brood is very troublesome in the North Island. This I believe is correct, but it is not so prevalent in the South; indeed, we much doubt if the true foul brood exists here at all. It is a very mild form of the disease with which we are acquainted, and readily yields to proper treatment.

R. E. D'OYLY.

Dunedin, N. Z., Nov. 1, 1888.

ARE QUEENS INJURED BY SHIPPING?

I read with no little interest friend Doolittle's article on page 749. It is just so near my own experience in handling and shipping queens, that I am fully persuaded, from practical trial and application of many of the circumstances mentioned therein, that friend Doolittle is *nearly correct*, while our friend Chas. Dadant, on page 846, is very much in error, I am sorry to say. It would be furthering my interest very much if I were able to sustain his assertion: "The shipment, by mail or express, does not deteriorate the laying of a queen, * * * even when she is taken from a full colony during the height of the laying season." Nearly every *prolific* queen that I have ever sent out from a full colony in the height of the laying season has been more or less a failure, ever afterward, as a layer. Why this was so, I am not able to say, though it may be caused in a variety of ways. A queen, when once partly starved, chilled, or overheated, is never worth any thing as a laying queen, though she may lay a few eggs, and live a year or two. A queen taken from a full colony in the laying season, and full of eggs, may be damaged by the difference in the temperature while in that state, as much as by the stoppage of laying in the regular order. No one, I hope, will say that it does not damage man to eat at ir-

regular intervals. Which of the two is the more delicately constituted, and liable to injury by a slight diversion from regular order of life—the laying queen or the human stomach? I want to emphasize the fact that a queen that is but a spare layer is just as good to breed from, and better than one that is an *excessive* layer. And, again, that queens taken from a nucleus hive are more profitable to the purchaser than those taken from a full colony in the height of her laying season.

ABBOTT L. SWINSON.

Goldsboro, N. C., Dec. 4, 1888.

With the large number of queens we annually send out by mail, it is strange that we have not noticed, or, rather, received, many complaints of such deterioration in said queens. There may be an *occasional* instance that *seems* to point that way; but that such cases may be frequent is not a matter of our observation. If you and friend Doolittle are correct (and you may be to a certain extent), why is it that we have never heard more frequently of such failure of egg-laying before? Now, it is just possible that your last sentence explains the difference in our experiences. Although our cells are raised in full colonies, the *queens*, as a rule, are reared in nuclei.

BALLING QUEENS; REFUSING TO ACCEPT CELLS.

Last spring, a year ago, I bought a queen from Dr. Brown, Augusta, Ga. She proved to be a fine layer, and purely mated. Last month I noticed the bees balling her. I smoked them well and closed the hive. Now they have a black queen. How did they get her, and why did they destroy their queen? In Italianizing I had colonies which would not receive queen-cells nor build one when given eggs, although they had been queenless for 10 and 12 days. Is not this unusual? In one of my colonies I often hear a noise resembling the growling of an opossum. You can hear it some 12 or 15 paces off, yet I can find nothing wrong. What do you suppose causes it?

D. C. MCCAMPBELL.

Harmontown, Miss., Nov. 27, 1888.

Friend M., it is hard to assign a reason why bees will at times ball a good fertile queen. Sometimes they will attack one as soon as the hive is opened—indeed, the disturbance is what causes them to behave so unseemly. As a usual thing, under such circumstances, if the hive be closed immediately the bees will let the queen alone, though it is our practice to blow a little smoke in at the entrance. In the instance you give, the balling resulted in the death of the queen; and her successor, it seems, it was a black one. At certain seasons of the year it is difficult to get colonies to accept cells given them; but if the bees are actually queenless, beyond any question, we feel pretty sure they will accept eggs and raise cells. We should incline to the opinion that the colony you mention had some sort of a queen, probably a fertile worker. The only thing to do is to scatter the brood and frames throughout the apiary. When a colony apparently queenless refuses to raise cells we generally come to the conclusion that they have fertile workers, and a careful scrutiny of the combs generally confirms this conclusion. Unfortunately, we don't know what an "opossum's growl" sounds

like; we therefore can form no conception of what that peculiar noise is which you notice among your bees. During the honey-flow there is a low hum that can be distinctly heard several feet away.

NOTES AND QUERIES.

STATISTICS.

ALLOW me to say that I am highly pleased with the Honey Statistics in GLEANINGS. I think that that alone should be worth a dollar per annum to many bee-keepers. I see by the latest statistics that friends Nebel & Son, of High Hill, Mo., are away ahead of us other fellows here in Missouri on the average crop of honey secured this season, and that with a large number of colonies, if I am not mistaken. How is it, friends, have you a better location, or do you know better how to manage the bees? S. E. MILLER.

Bluffton, Mo.

BEES AND FRUIT.

I notice a complaint in a recent number of GLEANINGS, regarding bees working on raspberries. I have had the same trouble, the bees being so troublesome as to almost drive away pickers.

Nichols, Conn., Dec. 13, 1888. H. P. NICHOLS.

A QUESTION FOR OUR "SALT-WATER" READERS.

What is the best paint for bee-hives in a salt-water locality—pure lead, zinc, lead and zinc, or some other kind of paint? A. B. MASON.

Auburndale, O.

[Will some of our readers located near salt water please answer? But why should proximity to salt water make any difference?]

APPLE-TREE SILK-MOTH.

Prof. Cook:—I send you by mail for identification, the pupa of some large insect found adhering to the limb of a plum-tree. Please report through GLEANINGS. W. D. ALLEN.

Kosse, Tex., Dec. 17, 1888.

Prof. Cook replies:

This fine large cocoon contains the apparently healthy chrysalis of our apple-tree silk-moth, *Platysamia Cceropia*. Next June there will come from this a large beautiful brown moth. A. J. COOK.

FEEDING EXTRACTED HONEY.

I wish to feed my bees honey for winter stores. How shall I do so, so as to have it not granulate in the combs? R. H. SHIPMAN.

Cannington, Ont.

[Feeding back extracted honey is rather unsatisfactory. It is difficult to prevent granulation in all cases. At the price honey is now, we would not think of feeding bees with it. By all means, feed sugar syrup well cooked. It makes a much better food, and if you make the syrup rightly you will have no trouble about its crystallization.]

HUTCHINSON'S PLAN ON EMPTY FRAMES; HEDDON'S NON-SWARMING PLAN.

I have tried Hutchinson's plan of hiving on empty frames, and failed. I have tried Doolittle's plan of hiving in contracted brood-chambers, filled with empty combs, combined with Heddon's plan to prevent after-swarms, by hiving on the old stand and removing old hive the 7th or 8th day, and I believe it superior to any non-swarming plan I have ever heard of for surplus honey. BENJ. A. RAPP.

Chillicothe, Mo., Nov. 9, 1888.

SOMETHING FROM THE E. AFRICA MISSION.

GLEANINGS has come to this mission regularly for two years. Native honey abounds in all localities; in nearly every tree you see large bark boxes put there by the natives, and many of them are full of honey. From 75 to 100 tons of wax is shipped from this port every year to Europe.

E. H. RICHARDS.

Mongwe, Inhambame, E. Africa, Oct. 20, 1888.

JAPANESE BUCKWHEAT A SUCCESS.

I got 2 lbs. from you last spring; sowed it on 20 rods of good ground. I harvested $7\frac{1}{2}$ bushels of nice buckwheat. Bees worked on it the same as on other. They worked sparingly on goldenrod; they worked very industriously on pridedweed. You could see from 4 to 12 on one head. They seemed to be crazy for it when in bloom. I suppose it is one of the goldenrod family. Bees got honey enough to winter on, and some swarms gave considerable surplus, mostly from basswood.

Chardon, O., Dec. 10, 1888.

W. McBRIDE.

REPORTS ENCOURAGING.

FROM 36 TO 60, AND \$250 WORTH OF HONEY, SOLD PEDDLING.

THE first of May found me with 36 colonies, some very good and some very poor, 8 of which number were so weak that it took them all the season before they got built up to good swarms. From the 28, good and fair, I sold honey, both comb and extracted, to the amount of \$250. I have a little over a barrel left on hand now. I increased them to 60 good swarms. They are in good shape, with plenty of honey to last them till fruit blossoms.

PEDDLING HONEY A SUCCESS.

I sold most of my honey in my home market. I had some friends in a little town 8 miles from my place, and my wife and I were going to see them. I told her I would take some honey along, and may be we could dispose of some. We took about 100 lbs., both of comb and extracted. It went like hot cakes; and the consequence was, I made 6 trips and sold \$140 worth in that town.

M. M. RICE.

Boscobel, Wis.

FROM 8 TO 16, AND PLenty OF HONEY.

Last spring I had 8 colonies, and increased, by dividing, to 16. I had plenty of nice section honey to supply my table. I have raised and introduced Italian queens into each colony.

D. C. McCAMPBELL.

Harmontown, Miss., Nov. 27, 1888.

FROM 50 TO 80, AND 800 LBS. OF HONEY.

I commenced in the spring with 50 colonies of bees, and they increased to 80. I got 800 lbs. of honey. I know the most of them had each nearly 100 lbs. left in the hives to winter on, because for the one that made comb honey I left all in the lower box, from 8 to 12 frames, almost solid full of honey. I clip all of my queens, and then let them swarm. I think this is much better.

Seneca, Kan., Dec. 5, 1888.

M. A. WILKINS.

FROM 30 TO 40, AND 1200 LBS. OF HONEY.

I began the season with 30 swarms—25 fair and 5 weak. I increased to 40, and took a little over 1200 lbs. of comb honey; 4 colonies did not give a

pound. I sold at from 14 to 18 cts. per lb., in Detroit. I sell all my unfinished sections that weigh not less than 6 oz., and so on up to 12 oz., some being wholly unsealed, and I find ready sale at from 8 to 12 cts. per lb. I think it better than keeping them over.

BENJ. PASSAGE.

Stark, Mich., Dec. 14, 1888.

FROM 30 TO 70, AND 1000 LBS. OF HONEY; ARTIFICIAL PASTURAGE; ALSIKE CLOVER FOR BEES AND STOCK.

The honey-flow in this locality has been bountiful the past summer, and those who had their dish right side up caught the golden harvest. My bees did as well as could be expected, considering the amount of care given them. From 30 colonies, spring count, I received about 1000 lbs. of honey in 1-lb. sections, and increased to 70 colonies; and I think if I had hived every swarm that issued I should have had 100 colonies at the close of the honey-flow. One colony of Italians first swarmed out. This was on June 1st, and it made 49 lbs. of clover and 24 of buckwheat honey in 1-lb. sections, and they had their brood-combs well filled for winter besides. In providing pasture for my bees I had 10 acres of alsike, 10 of Mammoth, and the pastures were white with white clover; and $\frac{1}{4}$ of a mile from my apiary were basswood-trees and 40 acres of buckwheat, where the bees could go if they wished to, and they did gather so much buckwheat honey that it is hard to get 10 cts. per lb. for nice 1-lb. sections. White-clover honey sells readily at 15 cts. per lb. in 2-lb. sections.

I cut my alsike clover, and had it thrashed, and got 8 bushels of very clean seed. I shall depend upon the alsike clover hereafter, not only for bee-pasture, but also sheep-pasture and for seed. On one side of my sheep-pasture there are three acres of alsike clover. It was sown 4 years ago, in the first part of the season. The sheep feed on the other portion of the pasture; but when the other portion gets short and dry, the sheep run and put their noses into the clover, and it shields them from the gad fly, and gives them good feed also.

I have 35 swarms in the cellar and 10 in A. I. Root's chaff hives, on their summer stand.

L. N. CHAPMAN.

River Falls, Wis., Dec. 12, 1888.

REPORTS DISCOURAGING.

A POOR YIELD.

I MADE preparations last spring for a good crop of honey, and received only about 140 lbs. of fall honey (in comb, no extracted), as surplus, which sold for $12\frac{1}{4}$ cts. per lb. to apply on a grocery bill. You see the bee-business has not been very profitable for me the past season, considering that I ran over 200 colonies for honey. I had only 15 new swarms during the season. I am not one of the class who can get a crop whether it is in the blossoms or not.

O. H. TOWNSEND.

Alamo, Mich., Dec. 11, 1888.

ALL LOSS.

There has been a failure in the honey crop in this locality for two seasons. When we figure the profit and loss, it's all loss. As I read in GLEANINGS recently, I hope for a "whopper" next year.

Damascus, O., Dec. 8, 1888.

EVAN SHREVE.

WINTERING NICELY.

Bees are wintering nicely so far here. It was a very poor season; they did not gather enough to winter on.

CHARLES SITTS.

Brasie Corners, N. Y., Dec. 13, 1888.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 97.—a. In cellar wintering, do you think top ventilation necessary? b. If not, how much and in what way do you provide for bottom ventilation?

I do.

MRS. L. HARRISON.

a. I do. b. I also leave open the whole width of the entrance.

GEO. GRIMM.

Some ventilation is necessary, and the difference in temperature is bound to cause a current.

DADANT & SON.

a. No. b. I leave the entrance of the hive open its entire width, $\frac{1}{2}$ inch in height. I should like better to have three times the space, however.

C. C. MILLER.

It does not make much difference about ventilation, and there is a wide difference in opinions regarding temperature; and all this comes about because the whole matter of safe wintering hinges on the food.

JAMES HEDDON.

A little top ventilation I think to be all right. A good deal might do no harm if a steady high temperature is kept in the cellar. As to its being exactly necessary in any case, I hardly think it is. b. Set the hive on blocks.

E. E. HASTY.

I think not, unless it be required to keep the temperature uniform, and at the proper point. If top ventilation of colony in hive is meant, I say no emphatically. I close at top entirely, but have entrance wide open. I would raise each colony 2 inches from bottom-board if I could easily.

A. J. COOK.

a. No. b. Ventilate at the bottom, only by placing the hives in rows with a space between each hive, then tier up, placing each hive over the space below. Set the first row of hives on covers arranged in the same way, or on stringers. This plan is fully described and illustrated in GLEANINGS, Feb. 1, 1888, p. 90.

H. R. BOARDMAN.

Upward ventilation is undesirable. I prefer a bottom-board with an opening in the center. I use an opening 5 x 10 inches. My methods all the year round require this. In winter quarters the bees cluster well down, and may usually be found in a cluster below the bottom of the frames. They are thus assured of their freedom; dead bees also drop out of the hive.

L. C. ROOT.

I don't know that I understand the question. If the ventilation of the cellar is meant, then I should say that it needs no special ventilation; if the questioner is speaking of the hives, then my plan would be to raise them off the bottom-board from two to twelve inches, leaving the top the same as in spring or fall when the sections are not on.

G. M. DOOLITTLE.

No, not usually; but with a warm cellar, with air near the point of saturation, a slow top ventilation may be necessary. We ventilate our hives by drawing a slide in the bottom-board. The slide is ten inches long, and is drawn open two or three inches, or even more, with the stronger swarms and warm cellars.

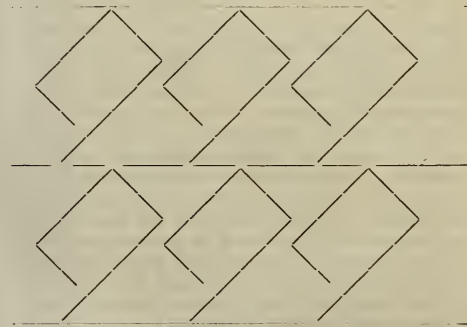
P. H. ELWOOD.

Not if the temperature is right. If the cellar is moist, the temperature should be higher than if the cellar is dry. I provide for bottom ventilation by removing the bottom-board and raising the hive one or two inches above what it sits on. To economize room I place a square stick an inch or more thick on top of each side of the hive, when in place, and set the next hive on these sticks, and so on as high as I can reach.

DR. A. B. MASON.

b. Dr. Jessie Oren, of Laporte City, Iowa, is as successful as any one I know of in cellar wintering, and his method of bottom ventilation of hives with tight bottom-boards is the best I know of. He sets his hives on ends, or, rather, on lower front corners, at an angle of about 45°, leaving entrances wide open. Succeeding hives are leaned against the first and others, and when the first tier is in place, wide boards are laid on top, then another tier of hives, etc. I inclose a rough diagram of the arrangement. This not only secures bottom ventilation, but allows dead bees and rubbish to drop from the hives during the winter.

O. O. POPPLETON.



OREN'S ARRANGEMENT OF HIVES.*

The general opinion seems to be that top ventilation for the hive is not necessary, and that a full-width entrance, or else an open bottom, or nearly so, is sufficient. Dr. Oren's plan would doubtless work very nicely, and the bottom-board at all times would be clean of dead bees. Friends Elwood and Root accomplish the same result by leaving an opening through the bottom of the hive.

QUESTION 98.—Is your cellar provided with a sub-earth ventilator? b. If so, has your experience taught you that they are an advantage, either for quieting bees or otherwise?

a. No; b. No.

DADANT & SON.

a. It is; b. Yes.

MRS. L. HARRISON.

No. b. I have had no experience in line with this question.

E. E. HASTY.

a. Yes. b. I think so, but it is hard to be very positive.

C. C. MILLER.

No. I am quite certain that it is worse than useless.

H. R. BOARDMAN.

* The diagram above is not strictly correct. The adjacent corners should come in contact.

No. My ventilators consist of a chimney and several tin pipes.

GEO. GRIMM.

If other conditions be right, I think a ventilator at the bottom of the cellar not only unnecessary, but objectionable.

L. C. ROOT.

No. We use no sub-earth ventilators. We do not believe any good can come from them which will compensate for their cost.

JAMES HEDDON.

No. A chimney extends down into the cellar; and a stove set up for use, in case it is needed, will give all the upper and lower ventilation needed. I have never been annoyed with bees becoming uneasy in winter, unless they were short of stores or eating too much bee-bread.

DR. A. B. MASON.

Yes. For years I kept bees in such a cellar, with almost perfect success. Properly arranged it surely aids to keep the temperature uniform. Were I sure that I could accomplish this easily and cheaply, without such ventilation, then I would not arrange for it.

A. J. COOK.

Yes; but when I say it has been kept closed entirely for the past three years, it will be seen that I regard it of no value whatever. Were I to build another bee-cellar, I would make no provision for ventilation, as I believe enough air passes through the walls and ground to meet all of the requirements of the bees while in winter repose.

G. M. DOOLITTLE.

Yes. If properly put down they are beneficial. They keep a more uniform temperature. At one time, when the temperature outside was 17° below zero, the air as it entered the cellar was 37° above. Our sub-earth ventilator is made of glazed sewer pipe, one foot in diameter for the first hundred feet; for the second hundred feet, eight inches in diameter. At the end of the twelve-inch pipe is an opening, to be used in moderate weather; but in cold weather the whole length of the pipe is used. The joints of the pipe should be securely cemented to keep out the ground air, which is usually loaded with moisture, and heavily charged with carbonic-acid gas. The last is very variable, however. Were I to put down another ventilator I would use six-inch pipe, as being easier to make tight, and multiply them for capacity; also, if possible, I would have them extend in different directions, as the direction of the wind makes a difference in the draft of the pipe. I would also have one or more of them so laid as to act as drains in case of freshet. Ours is so put down, and last spring it was used to nearly its full capacity.

P. H. ELWOOD.

The answers to Question 98 seem to be a little bit perplexing; but Dr. Miller, Prof. Cook, and P. H. Elwood, all of whom have had large experience with sub-earth ventilators, declare quite emphatically in favor of them—especially friend Elwood. We hardly know how to account for the difference in testimony in regard to the value of these ventilators, unless it be because of the relative warmth and dryness of the various cellars, or because of the length or size of the ventilators. Dr. Miller has assured us that, several times when his bees seemed to grow uneasy, he could quiet them by opening the ventilator. We are quite loth to give up the idea just yet, that the sub-earth ventilators are not necessary or useful.

QUESTION 99.—a. *How many colonies, according to your best judgment, can be wintered with reasonable assurance of success in a dry cellar, 10x10x6, frost-proof, with no special means of ventilation other than is afforded by the usual cellar windows?* b. *How many cubic feet of space in a cellar do you regard as best suited for wintering 100 colonies, average strength?*

Forty.

H. R. BOARDMAN.

a. Just as many as you can put in.

DADANT & SON.

You could safely winter 100 colonies in such a cellar.

JAMES HEDDON.

I should say about 40. b. I should like at least 1200 cubic feet.

A. J. COOK.

a. 75 or 80. b. Not less than 1000; and in my judgment, 1200 or 1500 would be better.

MRS. L. HARRISON.

All other conditions being as they should be, 100 colonies can be wintered in a cellar of the size above mentioned.

L. C. ROOT.

I am a Yankee, and guess with native freedom; but it would be carrying matters too far to guess the answer to this.

E. E. HASTY.

a. I do not like the proportion of the dimensions you give; six feet high does not suit me. I would sooner have it 10x6x10. b. This question is hard to answer. I have wintered successfully 350 colonies in a cellar about 20x25x8.

GEO. GRIMM.

All you can get in, providing you leave at least six inches of open space under each hive. Still, I prefer an alleyway through the center of the cellar, so I can pass from one end to the other occasionally to see that all is right.

G. M. DOOLITTLE.

That will depend upon the temperature at which the cellar is kept, and the size of the hive they are kept in. Over 200 in Langstroth hives *might* be kept in such a cellar. I should not care for any special arrangements for ventilation in such a cellar, but should prefer to have not over 100 in a cellar of that size.

DR. A. B. MASON.

a. Two cellars may both answer the above description, and yet be very unlike as to temperature and openness of wall and soil. Perhaps 40. b. The more the better. Perhaps 1500 cubic feet; but best arrangements for admitting plenty of pure air at right temperature might make a good deal less answer. (Mind you, I don't warrant my answers to 99. They are taken at "purchaser's risk.")

C. C. MILLER.

a. This depends upon so many conditions that it is hard to answer. If there is a fire overhead, the air of the cellar will be changed quite rapidly, perhaps more rapidly than with some of the "special means" of ventilation. I should say, with the average conditions, from thirty to fifty. b. The answer to this also depends upon the cellar. Some cellars require pretty heavy stocking to keep the proper temperature. Properly arranged, a cellar of twice the above size would do.

P. H. ELWOOD.

A cellar 10x10x6 will hold from 40 to 100 colonies; and 1500 cubic feet seems to be about the capacity that is necessary in order to winter 100 colonies. This would make a cellar about 15x15x7. The answers to all these questions necessarily can not be exact; but surely our veterans can get very much nearer the truth than the average beginner, who proposes to winter bees in the cellar, can guess at it.

OUR HOMES.

NOTES OF TRAVEL.

Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4: 14.

THE Ojai hot-springs (pronounced Ohi) are 15 miles from Ventura, in the Matilija canyon; the mountain scenery is some of the grandest I have seen.

Right opposite the hotel the mountain rises 1000 feet, almost perpendicular. Several objects of interest are found in the canyon, besides the springs. One of them,



THE DEVIL'S SLIDE, NEAR OJAI HOT SPRINGS, CAL.

called the Devil's Slide, we have reproduced from a photograph. It looks as if the boys, by riding down with their sleds, cut a path, or track, clear from the top of the mountain down the whole 1000 feet, to the river below. This appearance is caused by a stratum of rocks of regular and even thickness being turned up edgewise, with rock projecting a little higher on either side.

The picture was taken when the trees were in full leaf; but now the slide is visible clear down to the water.

To Huber.—Papa is in a strange country now. The sun has just gone down, and it is only 2 o'clock, just 2 hours after dinner time. The man who lives here says in a few days it won't get up above the awful big mountain at all for more than *six weeks*. Behind us is a fountain where the water spurts right straight up, higher than the house; and right down before us, around the great big clean white stones, is a spring where water just pours out that is *smoking hot*. Off up the creek a little way is another where the water is so hot you can hardly

bear your hand in it. The men have made a long wooden box to carry the water to a little house where there are a lot of bath-tubs. I just took a bath, and it was real fun, I tell you, to have a big lot of real warm water pour right on to you. It is a funny kind of water, that doesn't need any soap—no, not even for papa's head, and I think even mamma herself would say my head is very clean now. I don't think I ever looked quite so white before in my life. Up in this canyon is a great place to keep bees, and the honey the bees get is the nicest in the world. I saw the man who first found out it was a good place for honey. One year he got more than a hundred wagon-loads of honey from his own apiary. The road he made to draw the bees up and get the honey out, you would think an awful road. It just shakes a body's breath out to ride over it. Sometimes he would stay up there in the mountain gorge, all alone, for two weeks, and not see anybody at all. One of the bee-men hired a boy to work for him. His name was Elmer. Well, he used to leave Elmer all alone there to work, and he didn't see anybody at all for days. One day when they came up, Elmer asked them if they couldn't bring him a cat or a dog, or something that had "the breath of life in it," to keep him company. They said one time he took the ax and chopped a great pile of wood, because he wanted something to do, and because he used to chop wood away back in his home, yet nobody wanted wood around here. Well, out here they have a great deal of trouble with bears. They come to the bee-hives and turn them over, and take their great paws and scoop out the bees and honey to eat. One time a bear spoiled so many hives that Mr. Shaw, the man who first went up here, stayed all night up in a tree, with his gun, to shoot him. He made a little house or cage up in the tree, so if the bear climbed up he could not get at him, and then they waited. About 11 o'clock, along came a great big grizzly bear, and commenced to paw the hives to pieces. The two men in the tree shot him until he was dead.

They have a great many California rats here; and where do you suppose they build their nests? Why, up in the tree-tops; and the way they do it is, that each rat takes a stick in his mouth and walks up the tree. I saw lots of their nests. These rats are very busy folks; they are always carrying something. A lady said the rats once got a habit of leaving a pile of sticks on her doorstep every morning; and to get rid of them, she used them to kindle the fire to get breakfast; and for a long time the rats gathered her kindlings every morning. Mr. Wilkin once lost his clock-key, and found the rats had carried it up garret and put it in an old stovepipe. They make their nests usually in walnut-trees, where it is handy to gather walnuts. Mr. Shaw says there is a place up near his apiary where the ground is so hot, winter and summer, that you can hardly stand on it.

GENERAL NOTES.

I supposed, of course, the heat from these hot-springs was caused by volcanic agency; but the proprietor says it is supposed to be caused by chemical action. These mountains are full of minerals; and when the water from the rains passes over a certain chemical it becomes impregnated, and then dissolves another of just the right kind. Thus great heat is given out. Sulphuric acid and water, when mixed in the right proportions, will become boiling hot. I think one of the prominent chemicals in this water is a salt of iron. I can not see, however, how this should produce that hot spot in the ground, which Mr. Shaw spoke of.

Castor beans here form trees; and even the beautiful fuschia is a hard-wood tree. Imagine a tree covered with fuschia blossoms, more beautiful, larger, and more perfect, than those in greenhouses at home. The century-plant also blooms here. In passing a garden I asked what kind of a tree it was that loomed above all the rest.

"Why, that is the flower-stalk of the century-plant," was the reply.

"But it isn't possible," said I, "that this great tree all grew in one season?"

"Mr. Root, that *great tree* all grew in *just a few weeks*," was the answer. After it blooms, the plant dies. The one I saw was said to be about 30 years old. The plant had been all these years accumulating material for this grand finale—the sending-up of the blossom and seed-stalk. I am impressed with the thought that we are something like the century-plant. We are, during this life, accumulating knowledge and strength of character, for some grand finale in the great future; but while the century-plant dies down after it, *we* are to have "life eternal."

Dec. 1. Through the kindness of friend Wilkin and Mr. and Mrs. Mercer, I have again had a most pleasant drive through the country to Santa Paula. While there we had a sort of bee-keeper's picnic. I was greatly pleased to meet no less a personage than J. G. Cory, the inventor of the Cory cold-blast smoker, who was a resident of the place. Our older readers will remember the story of friend Cory's kind present. Rufus Touchton, who has written some for

GLEANINGS, is also a resident of Santa Paula. The great center of the oil regions of Ventura Co. is here. A single one of the storing-tanks is 100 feet in diameter, and 25 feet high. From the pipes coming in from different wells, *2000 barrels of oil daily* is emptied into this immense tank. While we were there, by an accident to one of the pipes the oil flowed over the ground so that the men had to turn out with shovels and dam it up until it could be secured. There is quite an extensive oil refinery here. The boilers for working their immense pumps are run with oil as fuel. Between Ventura and Santa Paula are immense farms for corn and barley, and excellent corn was seen all along the way, piled up in immense heaps in the field. Corn-shellers, run by steam, shell and bag it. Plowing is mostly done by a gang of three or four plows drawn by four or six horses. The valley is one of the finest for fruit and grain, that will succeed without irrigation, of any that I have seen. Apricot and English-walnut orchards occupy mile after mile of the land. Great evaporating-houses for the fruit are seen at intervals all along. Immense corn-crisps, without any roofs, are also found, but I believe the best farmers cover their corn in the winter time. Cattle and horses seldom have any roofs over them on the farms. They say, when they have sheds, the animals never go under them, even in *winter*, when it rains. It usually rains in the night time, and sunshine is the rule every *day* in the year. It has rained nearly all of one day since I have been here, but I am told the like has not happened before, since three years ago. Winter and summer are very much alike, only the days are shorter in winter. It seems odd to have this beautiful spring weather, and yet see the days so short. The sun rises now about 7 and sets about 4.

Dec. 2.—Another glorious Sabbath day. I got acquainted with the pastor of the Ventura Congregational church on Saturday; but as he was prevented by sudden illness from preaching, it was suggested, as it was late to go to other churches, that we have a prayer and devotional meeting, instead of the regular services, and very soon it was suggested a stranger from Ohio was present, who was quite a Christian worker, and the leader called upon "Bro. Root" to tell us something of Christian work in Ohio. At the close a number gathered around me as before, and I tell you it made me feel happy to hear different ones say they knew me because they had read my writings. I felt happy to remember that almost every thing I have ever written, told, sooner or later, for Christ Jesus. At the opening of the Sunday-school I was assigned the Bible-class; and learning there was a mission school two miles away that the pastor usually took charge of, by the kindness of friend Mercer we were on hand at half-past two. The key to the schoolhouse was lost, however, and the crowd gathered there had to postpone the school and go home. We got back to town just in time to attend a meeting of the Y. M. C. A., and a most able talk was given us by one of the merchants. The attend-

ance was good, and almost all took part. After this we attended the Endeavor Society, and the leader very soon called on "Bro. Root." The attendance here was nearly all young ladies. The leader told me they were sorry that they had so far been unable to get many of the young men interested. They sent very kind messages to the Society in Medina. They take the *Golden Rule*, and think much of it. The leader mentioned in my talk with her that she had but little time to spare, as three of them had in charge a Chinese Sunday-school, and the pupils were probably waiting for them then. I begged to go along, and, on account of a vacancy, I was called upon to explain the lesson to a lot of Chinese brothers. Yes, *brothers* they are, no matter how they came here, or what the purpose. They answered questions quite freely; and when the teacher told them to let the stranger see how well they could write on the blackboard, they expressed their gratitude to me by well-worded and neatly written sentences in our language. Then they wrote for me in Chinese. At the close of the school they repeated the Lord's prayer, first in English and then in Chinese; and after the school was over, one of them gave me some of their tea from a beautiful China teapot, kept warm in a padded flannel cushioned basket. The Chinese here are very neatly and cleanly dressed, and the boys in the school were, most of them, intelligent, fine-looking fellows. I questioned them pretty closely in my talk with them in the class, and the teacher tells me they told the truth when they said they did not drink, swear, nor steal. She also says Chinamen always pay their debts, and seldom waste time in idleness. As I talked with them I thought of Bro. Ament* and his labors; and when I walked home, pretty well tired with the labors of the day, you need not be surprised when I tell you I had one of those bright experiences that seem to give a glimpse of the heaven that awaits those who delight in being servants of the Lord. Why, the delight in meeting with such beautiful and grand Christian characters as I have met to-day, both among the men and women, is enough to make one break forth in praises to God; and it is not to-day only, but every Sunday since I have left home; and the probability is, that I should be able to find more like them in every town and city, were I to travel *months* and *years*, for I have had the peace of God in my *own heart*, and this has helped me to find Christian people, and to appreciate their good qualities when found. Does some one suggest that, if I were to live by these people day after day, I would think differently of them? God forbid! The person who has in himself the "living water," "springing up into everlasting life," will always find good neighbors, no matter where he is. Dear reader, what kind of neighbors are round about you?

Dec. 3.—To Huber. Where papa is now,

*The pastor of our church. He has been with us for about four years. The most of his life previous to that time was spent in China. His people, however, kept sending so continually for him to come back that he left us a few months ago to resume his labors at his old home.

the men who ride on horses carry long leather ropes, called lassoes, that they can throw so true as to catch a cow or a horse that is running away, or even catch a man if they want to. These horses with lassoes attached to their saddles are almost always standing hitched in the town; and whenever a team runs away, one of the Spaniards is sure to lasso the horses and stop them before they have gone very far. They have a slip noose in the end of the long leather rope, that they throw over the head or catch the heels of the cow or horse. Some time ago a couple of Spaniards were riding along, and a great grizzly bear came at them. As quick as a wink one horseman threw his lasso over the bear's head, and tried to choke him; but the bear chased the man and horse until the other man lassoed one of his hind legs. Then they had Mr. Bear in a fix. When he tried to get *one* man, the other held him off; and if he tried to get the other, *he* held him off. In this way they tired him out, and really brought him into town, to the great delight of all the town people, especially the *small boys*. The horses the Spaniards ride are trained so that, when their rider throws a lasso, they brace themselves and pull with all their might to hold a cow or horse; in fact, they say they rather like the fun. They tell you here that, if a bear chases you, you must not try to get away by running down hill or up hill, but just run along the side-hill; and as the bear's legs are not made for side-hill running, he will tumble down and roll over every once in a while; and this takes so much time that the man can get away from him.

Dec. 3, just before going to bed. Here I am, away up in a little notch amid the mountains. Of all the winding, tortuous roads, I never before traversed one like this. I am staying with Mr. Thomas Arundel, or better known by the bee-men as "Tommy Irondale." Bee-keepers have been pushed back by the fruit-men until many of them have gone way back, where the bees can't intrude or hinder, and in this way friend A. has found his pleasant home. When he found his bees here in this wild glen gave more and better honey than any of the rest. he persuaded a charming girl, with energy and determination like his own, to share his lot; and here, three miles or more from any neighbors, they have reared their children, four in number. The oldest is now about 7. It seemed odd indeed to find so pleasant a home after three miles of crooks and turns, without seeing a house; and when my neat little room was assigned me, with its many little evidences of feminine taste, so cosy and snug and pretty, I could hardly feel as if I deserved it. I felt like saying, "A. I. Root, what have you done to entitle you to the best of every thing everywhere you go? Why should these good people labor and toil to fix up nice pleasant homes, and then place them at your disposal?" To tell the truth, I do feel every day as if I deserved no such kindness; but every little while I get a hint of *why* I am thus honored. As we turned the last curve, and came out through the leafy trees in sight of the cot-

tage, friend A. spoke of what I had written in regard to finding that spring of water, of my talk about hydraulic rams, and the wind-mill, and of a pet project of his own to bring that babbling brook to his house, just above us; and then I saw that GLEANINGS had been read*, and my investigations had been eagerly followed by many I did not then know, and in homes I at the time had no knowledge of. Later, when I heard how the good mother had taken these little ones to Sunday-school at the schoolhouse, three miles away, even when a California lion glared at them through the bushes on their way home, I remembered too of the times when I, in my poor way, had tried to tell of the "living water," "springing up into everlasting life," and that, in all probability, the dear ones in this home too had been interested, and may be had been helped in that way. Prominently on the neat little stand on which I write is a little Bible, evidently placed there by the same hand that fixed the rest of the room so trim and neat, feeling sure that Mr. Root would want it. May God be praised for this act. I do want it; I want it while I live, and I want it when I die. I want it always near me. Dear reader, I haven't room to tell you of all these homes; but this one is a sample of most of them, and I hope I may never forget to pray for the dear brothers and sisters I have found here in California.

During the day I visited the Sespe Apiary, illustrated in the A B C book. Friend Wilkin now no longer owns it, but it has been turned over to a bright muscular young Canadian, who not only gives it excellent care, but cares for friend W.'s youngest daughter also, and the two handsome children God has given them. Young McIntyre has the best-kept apiary and honey-house I have so far found in California. He brings in the combs to extract on a two-wheeled cart. The cart contains two boxes for holding the combs, with cloth covers to keep out robbers. The cloth is fastened to the box at one edge, and a stick is fastened to the other edge, heavy enough to keep the wind from blowing it away. I will describe his can for holding the cappings, at some future time, with suitable engravings. As I passed through Santa Paula, Rufus Touchton handed me a box of beautiful large strawberries. All the bee-friends seem to know of my interest in strawberries, and I was a good deal "touched" by the compliment and courtesy.

AN OPTICAL ILLUSION.

When you are driving on a level road that runs straight toward a range of mountains, when about a mile away from the mountains you will feel sure you are going down hill. Even when going up hill toward the mountains I was so sure it was down that I became almost tried with my friends when they declared it was not down. In fact, I could not believe it until we came to a stream of water, and I was then startled to

find it running up hill! If you turn about, however, and look behind you, every thing looks right. Old residents learn to allow for this deception; but new comers are very much astonished.

December 4.—To Huber. O Huber! I wish you could be with papa just a few minutes. All around me are the great mountains, with the sun shining on their peaks. Before me is a beautiful green tree, just splendid with loads of red berries. Beside me are Frankie and his sister, and Norman is drawing his wagon up the hill, and Louisa is the baby. The boys are bareheaded and barefooted right here in the winter. They are asking me why I did not bring Huber along. I have just been up the canyon a mile or more to see a beautiful waterfall. The water comes down from about as high as the chimney to our house; and the funny part of it is, that the water itself has made a trough on the back side of the falls, so it just slides down. The water is of a kind that covers every thing with stone. I had to climb like every thing to get up to the fall; but as the buggy was waiting for me, I skipped back down the rocks pretty lively. I feel real strong and well and happy. The buggy is waiting now, so I must stop writing and bid the little prattlers and their mamma good-by. Off we go among the great mountains again, and find another bee-man. There are lots of bears around here, and they trouble the bee-keepers. I have just been looking at a big oak-tree that has great scars on its bark, made by a bear's claws. Mr. Reasoner had bad luck with his bees one year, so that only 11 colonies were left. Well, an old bear came every night and clawed the honey out until only one of the 11 was left, and Mr. R. wanted so bad to keep that one that he hung it up in the tree by a rope, so high the old bear could not reach it. He could not carry it away, for the bees that were gathering honey would be lost; but if it were hung up they could find it. Well, that night the bear came after more honey; and as he could not reach that last hive, he clawed up the tree and commenced to slide down on the rope, to get the bees. Now, the rope held the hive very well, but it wouldn't hold a big bear too, and so it broke, and down came bear, bees, and all. I guess he must have been somewhat astonished; but he gathered himself up and ate all the honey, and then went off. As he had now got the last one, Mr. R. thought he wouldn't come any more; but back he came the next night. Well, the bees that had no hives wanted to work somewhere, and so they went into the bee-house near by, and built some combs under the clock-shelf, and, don't you believe that that old bear smelled the honey under the clock-shelf and wanted that too? but as the honey-house was shut up and locked, he could not get in; but he made a hole in one corner with his teeth and claws until he could get one paw through, and then he reached in as far as he could and tried to claw down that last bit of honey the poor bees had made. I saw the place where he made the hole in the bee-house.

And now it is night again, and papa is

* The most prominent thing in friend Arundel's library is volumes of GLEANINGS, neatly bound, and lettered on the back in home-made binding and lettering.

away off alone in the wilderness waiting for a train. The train never stops here unless some one burns a newspaper and waves it across the track to let them see that somebody wants to get on. As it is awful dark, and papa has got to wait over an hour, he has built a fire of sticks, and the kiotes have come up as near the fire as they dare, and are making an awful barking and growling. Papa is almost afraid some bad men might see the fire, and come to rob him. Pretty soon he hears somebody. It is a man who has been up in the mountains digging gold, and he shows papa by the light of the fire the gold he dug to-day. Pretty soon another awful big man comes up, swearing fearfully, because he says nobody will give him work, and he hasn't any money. Papa is awful glad the other man is there, and he gives the bad man a real good talking-to, because he swears so bad. Then the bad man pulls out a bottle of whisky and wants us to drink; but when he finds we are both temperance men he goes off in the dark, swearing harder, and saying he never saw two such men before in his life, that won't drink when somebody offers to give it to them! Just here the old locomotive came in sight; the gold miner waved the burning paper, and we were soon in the cars among nice people. In just a few minutes more we stopped at a nice town where supper was all ready, and a man was pounding a gong to get us to come in and eat it. Now just think how funny! This gold miner knows Uncle Hen's cousin, and he is going to help me to find him. He also asked me to go with him out in the mountains and see him dig gold, but I don't think I shall have time.

Dec. 5.—There are now but few small beekeepers in California—at least I have not found them. I have visited nearly a dozen apiaries, and few of them are less than 300. Most of them admit that a smaller number would do better in one locality, but the convenience of having all in one place overbalances. Most of them live in the towns, and have their bees located in the mountains, and look after them only occasionally, except during the honey-flow. McIntyre, Arundel, the Reasoner Bros., our old friend Lechler (who gave us that wonderful report some years ago), Marple, and Sniffin, all live near their bees. I am greatly indebted to the first three for leaving their work and passing me from one to the other, over and through the mountains, and up the canyons. A good many, I find, are discarding the hexagonal apiary, or, rather, modifying it so as to have the hives stand in double rows, radiating from a common center like the spokes of a wheel. The alley formed between the double rows is for running a cart or wheelbarrow through, for carrying the honey to the honey-house, the entrances to the hives being all turned outward, so that the operator and cart never stand in the way of the flight of the bees. Friend Reasoner has grapevines also, planted near the hives for shade, with this form of apiary. His hives are all neatly painted. Friend Lechler has his in long rows under live-oak trees, and says he always gets most honey

from hives in densest shade. This is an important item. Another thing in favor of shade-trees is, that they take the strength (or moisture) from the ground so thoroughly that no weeds grow, and the ground under the trees is as clean as a floor. Almost all agree that, where many hives are all alike, the bees are constantly going into the hives on the *outside* of the apiary. I think this should be corrected by having the hives made more unlike in some way.

Friend Reasoner helped me to ascend the first big mountain. I say helped, for I could not well have done it alone. I wanted to see the end, or termination, of a canyon, so we took a light cart, or sulky, and a big strong horse. When the horse began to get tired he walked while I drove along on the winding slope, all the time on the edge of a frightful abyss. When the horse got tired with me alone, I too went afoot until we came to the dividing ridge. Here the canyon ends; but right over the edge of the sharp ridge another canyon begins, taking the water in an opposite direction, and thus it is there are no mountains without their accompanying water-courses.

Well, my friend said he would stay with the horse on the ridge, while I walked along it until I came to a higher elevation, a real mountain peak. Strange to tell, the ground on these mountain peaks is soft and yielding, and mellow enough for a beautiful garden. As I went up, up, the sides became steeper; and as I gazed into the frightful abyss all around I became dizzy; then my throat began to be dry and to smart, and finally my ears began to feel strangely on account of the rarity of the air. Once I began to think of going back, as my breath got so short; then I discovered a faint path across the side-hill at an angle, and this I found much easier. Spanish bayonets were all around me, and their leaves were so sharp they went right through my clothing, so I had to pick my way. The summit is finally reached, and from the dizzy height I see only other summits like my own, in every direction except toward the ocean. I could not see its waters, but there seemed a sort of vacancy in that direction. All around was one vast solitary ruin of nature. My friend and his horse looked like rats, and yet they were up miles from the valley below. I was surprised to find these mountain peaks quite well frequented by different kinds of wild animals, as was evident by their excrement, which was so plentiful and some of it of such large size I guessed it must have been from bears and mountain lions, as well as wildcats and smaller animals. I do not know what should call them to these extreme peaks. I judged they were mostly flesh-eating animals. Mountains are wonderfully deceptive to the uninitiated. Mr. McIntyre told me a peak before the house was two miles away, when it was apparently right close by. I could not realize it until he pointed out some animals near its summit, and asked me what they were. They were little specks that I thought might be small pigs until he told me they were cows. Again, we often came to the "end of the road," apparently. The mountain was sure-

ly entire, and without any crevice or opening; yet as we went on, before you knew how it came about, a canyon opened, where, a few minutes before, was the clear smooth mountain-side.

Continued Jan. 15.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 1, 1889.

Before the mountains were brought forth, or ever thou hadst formed the earth and the world, even from everlasting to everlasting, thou art God.—PSALM 90: 2.

RENEWALS are coming in rapidly and promptly, for which we tender thanks. We have 8442 names.

MANY kind expressions come in in regard to the biographical sketches. See Kind Words elsewhere.

MY VISIT TO CALIFORNIA.

THESE notes of travel will occupy considerable space in several issues yet—probably until March 1.

A WEDDING-CARD.

THE following announcement, gotten up in the latest style of the art, comes to hand:

Married, Thursday, December twenty-seventh, 1888, Husted, N. Y., Julia C. Collin, Geo. H. Knickerbocker.

We extend our hearty congratulations.

LOSS BY FIRE.

WE are advised that the first installment of the Langstroth Revised was destroyed by fire while in the book-bindery. As a consequence, the work will not appear as soon as it was anticipated. The loss was covered by insurance, and the delay will be of comparatively short duration.

DEVICES FOR CARRYING HIVES.

WE have received a host of letters on the subject as above—more than we expected. We extend our thanks to one and all. The most of the devices for the purpose are quite similar in principle. We hope to illustrate one or two of the best soon; but for the present it will hardly be worth your while to send in more suggestions.

AT HOME AGAIN.

I AM once more (Dec. 20) at home again. The past few weeks seem so much like a dream that every little while I have to shake myself and look around to make sure that I am in wintry Medina instead of away off in California, the land of perpetual flowers and sunshine. I am glad I am here, though, after all.

THE IGNOTUM TOMATO.

EVER so many have been asking whether the seed of this tomato is all gone yet. To be sure, it is not. We had about 5000 packages prepared to give away to our readers, and I do not think we have given away 1000 so far. Every subscriber of GLEANINGS who raises tomatoes may have a sample

package, simply by asking for it when they renew, or telling us on a postal card at any other time.

GARDEN-SEEDS FOR 1889.

NOT only in Florida, but in California and other points in the West and Southwest, we are having quite a little call for garden-seeds, and we accordingly submit a list with prices in this issue. I am experimenting with and testing pretty much all of the novelties, but I have not found any of them sufficiently satisfactory to warrant me in giving them a place in our list, except those already mentioned. I would say, however, that some of the new things will be recommended if they behave as well another season as they have during the past.

ACCEPTABLE MATTER FOR GLEANINGS.

THERE is a big pile of copy on our desk, awaiting insertion. It can't all find a place, and, according to the rule of the survival of the fittest, some of it we fear will have to go unprinted. At times we have so much copy that even good and valuable matter shares a similar fate. Remember, our space for articles, especially long ones, is limited; but we will make room for short pithy items. Questions are always acceptable when briefly stated, and when written upon a separate slip of paper. Don't expect an answer—at least, not immediately, if you mix your questions up with other matter.

PROFESSIONAL MEN IN OUR RANKS.

CONCERNING the biographical sketches and the portraits in the A B C form in last issue, one of our correspondents, G. C. Hughes, Pipestem, W. Va., well says: "After a glance at the intelligent faces, one would suppose that the members of the bee-fraternity are second to none—not even those of the legal profession." Very true, and yet it is not surprising; for there are lawyers, doctors (lots of 'em), professors, ministers, and, and—even editors (beg pardon) in our ranks. Of the non-professional men with us, we need not be ashamed. We have great reason to be proud of our representative bee-keepers. They would and do adorn and honor almost any calling.

ERRATUM.

ON page 961, Dec. 15, just below the diagram, instead of the expression, "Now, the mountains in the table lands," it should read, "Now, the mountains composing our great mountain ranges," etc. The idea is, where we find mountains composed of regular level strata, it indicates that the surrounding land and rocks have been washed or worn away; whereas the real mountains proper have their strata tipped obliquely, and sometimes clear up to the perpendicular, indicating that they have been thrown up by earthquakes or volcanic action. In Arizona and New Mexico the mountains like the diagram are quite common; but in California, along the Rocky Mountains, and through Utah and Colorado, they are of the other sort—see p. 27. Of course, the action of the wind and water is constantly wearing down and modifying both kinds.

POTATOES—DOES THE VARIETY HAVE ANY INFLUENCE ON THEIR ROTTING?

I HAVE always been a little skeptical in regard to this matter until the past season. On our creek-bottom ground we raised tremendous crops of Early Ohio, Early Pearl, Lee's Favorite, and Empire State, with scarcely a rotten potato in several

hundred bushels. Well, right on the same ground we planted one row of a choice variety of potatoes sent us to be tested. When the hands were digging the others I thought I would dig this new variety. Now, although there was a very good show of tops when they were green, imagine my surprise to find not a potato of any kind or size in the first hill. When the second hill turned out the same way, I called the boys to know what the matter was. The reply was, "They all rotted quite a spell ago;" and on looking closely I found the remains of what had been potatoes. I did not find a potato fit to cook, for a sample, in the whole row. It seems to me that this settles the matter, that some varieties of potatoes are much more disposed to rot than others, and I shall have to tell my friend that his new seedling is not a success in our locality. As our potatoes were on rather low ground, and we have had an unusual amount of rain this season, during a dry season the result may not be the same.

CALIFORNIA CLIMATE FOR HEALTH.

I NEVER in my life weighed more than about 130 pounds, without my overcoat; but on my return from California I pulled down 142 strong. I occasionally take my before-dinner nap; but I am feeling so well most of the time that it is hard for me to sleep. And those spells of nervous prostration, which I have mentioned, have disappeared almost entirely, even if I work steadily in the office all the forenoon. Very likely, however, rambling over the mountains in the open air, and being outdoors almost all the time, would have almost as beneficial an effect in our climate as it would have in California. There is this about Southern California, however: Their climate is such, even in the winter time, that most people prefer to be outdoors the greater part of the time; and even while indoors, the doors and windows are open so much there is but little danger from suffering from stagnated atmosphere. Another thing: The greater part of the buildings have more or less openings that admit pure air, even if one should forget to open the doors and windows. I heard a good many object to having houses lathed and plastered, because the lath and plaster cut off the circulation of the air, more or less. Our stenographer adds, by way of a joke, "Climate is good, but 'climbit' is better."

SPECIAL NOTICES.

A BIG BARGAIN IN LETTER, NOTE, AND STATEMENT HEADS; ALSO LABELS OF GLAZED PAPERS.

A paper firm near us has recently become insolvent, in consequence of which we have secured some very fine label stock, also letter and note paper, statements and bill-heads. Any of our readers who are in need of any thing in this line will do well to write for samples and prices.

CHEESE-CLOTH AND COTTON SHEETING AT A BARGAIN.

We use both the above fabrics in making strain-ers and covers for our honey-extractors. In making an order recently, we, by a misuse of terms, got more than we intended. We accordingly offer it to our readers as follows: Cheese-cloth, 5 cts. per yard; 10 yards, 45 cts. By the piece of 60 yards, 3½ cts. per yard. This is 36 inches wide. Cotton sheeting, 36 inches wide, weighing 11 lbs. to the piece of 40 yards, 8 cts. per yard; 10 yards, 75 cts.

By the piece of 40 yards, 7 cts. per yard. If you would like to see what you are getting before you order, we can mail you a small sample on application.

THE CHICAGO SINGER SEWING-MACHINE.

Our readers will remember that, in our premium list issued with the Nov. 15th number of GLEANINGS, we devoted a full page to the above machine, offering them as premiums, also for cash. Several of our readers somehow got the impression that it was an advertisement inserted by us for the manufacturers of the machine, and have been writing them direct, only to have their letters forwarded to us for reply. We wish to say that the company do not sell the machines retail, but only through newspapers and journals. If you wish to know anything further than we have said in regard to them in premium list, please write to us, not to the company in Chicago.

REDUCTION IN THE PRICE OF BOXWOOD POCKET-RULES.

We have just laid in a new supply of pocket-rules, and can offer you better value for the money than ever before. The following is our complete list, with prices:

Post.	Name and description.	Price.	10	100
2	RULE, 1-FOOT, FOUR FOLD, round joint, No. 69	5	45	4 40

This is the very same rule we have been selling for years at 10 cts. each. We have now got them down to the five-cent counter.

2	RULE, 1-FOOT, FOUR FOLD, SQUARE JOINT, EDGE PLATES, No. 64	10	84	8 00
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This has much stronger joints than the five-cent one; otherwise it is no different.

3	RULE, 2-FOOT, FOUR FOLD, SQUARE JOINT, No. 61	10	84	8 00
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An excellent rule for the money; has better joints than our old 10-cent one.

4	RULE, 2-FOOT, FOUR FOLD, HALF BOUND, No. 84	25	2	10	20 00
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This is the very rule we have sold for years at 35c. It is brass bound on the outside edges.

5	RULE, 2-FOOT, FOUR FOLD, No. 60, double-arch joint, full brass bound	35	3	10	30 00
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This is our new 35-cent rule; is much better than the old, and I don't believe you will find it sold anywhere else for less than 50 cents.

6	RULE, 2-FOOT, 4 FOLD, 1½ in., No. 78½	50	4	20	40 00
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This is the best rule of its size made. It is just like the 35-cent one, except it is 1½ wide, closed, while the 35-cent one is 1 inch.

3	RULE, 2-FOOT, 6 FOLD, No. 58. Arch joint and edge plates	35	3	00	28 00
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Closes to 4 inches in length, which is sometimes convenient.

3	RULE, 1-FOOT, CALIPER, No. 32, arch joint, four fold	25	2	10	20 00
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We formerly sold this rule for 50 cts.; but for a year or two at 35; now we have it down to 25.

4	RULE, 1-FOOT, CALIPER, No. 32½, arch joint, brass bound, four fold	35	3	10	30 00
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This is the same as the 25-cent one, but is brass bound, and the best rule of its size made.

4	RULE, 1-FOOT, CALIPER, TWO FOLD, No. 36½	25	2	10	20 00
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This is a very convenient rule sometimes, as it will caliper 5 inches.

2	RULE, 6-INCH, CALIPER, TWO FOLD, No. 36	15	1	40	13 50
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We sold this for years at 25 cents; afterward at 20; now it is down to 15 cents.

All the above rules are made of boxwood, by the Stanley Rule and Level Co., who have the highest reputation for this class of goods of any manufacturers we know of.

SEEDS

Our sales in 1888 double those of 1887. Why? Because we sell only the Best, at Reasonable Prices.

SEED POTATOES, largest stock, great variety.

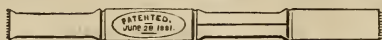
Small Fruit Plants and Trees. Catalogue Free.

FRANK FORD & SONS, Ravenna, Ohio.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.

21tf ANTHONY OPP, Helena, Phillips Co., Ark.

J. FORNCROOK & CO.,
MANUFACTURERS OF THE
"BOSS" ONE-PIECE SECTIONS,



WILL furnish you, the coming season, ONE-PIECE SECTIONS as cheap as the cheapest.
WRITE FOR PRICES.
Watertown, Wis., Jan. 1, 1889. 1d

In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.

A full line of supplies always on hand. Also Italian queens and bees at a very low price. Send for large illustrated price list. 1-23d

A. F. Stauffer, Sterling, Ill.

In responding to this advertisement mention GLEANINGS.

FOR THE SEASON OF 1889.

Headquarters in the South.

ELEVENTH ANNUAL CATALOGUE NOW READY.

The only steam-factory erected in the South, exclusively for the manufacture of Bee-Keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured—in April and May, \$4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Eleventh Annual Catalogue.

P. L. VIALLO, N,

Bayou Coula, Iberville Parish, La.

1-3-5d

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

WE ARE READY

To fill orders for Apian Supplies cheaper than the cheapest. Those in want will please write for price list and sample sections. Address 1d

J. B. MURRAY, ADA, Ohio.

FOR SALE.

OUTFITS for making 2-OUNCE SHAVING SECTIONS, consisting of one Form and a sample Frame of 20 Sections made up, ready to lift off the Form; also enough Veneer to make 1,000 Sections. All packed, and delivered at the Express Office, for \$2.50. Address 1d

W. HARMER,

411 Eighth St., Manistee, Mich.

SEND NOW

for my 1889 price list of supplies, 4-piece poplar and basswood sections at \$3.50 to \$3.00 per M. Poplar sections for the new Heddon hive a specialty. Price lists out Feb. 1st. H. P. LANGDON,

3-6db East Constable, Frank. Co., N. Y.

In responding to this advertisement mention GLEANINGS.

✧New Orleans Apiary.✧

Three hundred colonies of Italian and Carniolan Bees for sale at a low price, all in Langstroth hives. No rent to purchasers for the location, or will sell in small lots, to be shipped in the spring.

Address **J. W. WINDER,**
New Orleans, La.

In responding to this advertisement mention GLEANINGS.

THE "REVIEW."

THE BEE-KEEPERS' REVIEW for Dec. has four extra pages—twenty in all. Upon the first page is a brief history of the "REVIEW," also an excellent

PORTRAIT OF ITS EDITOR

—one of those beautiful lives reproductions. The special topic of this issue is: "Sections and their Adjustment on the Hives," and it is handled by such men as Jas. Heddon, Dr. C. C. Miller, R. L. Taylor, Oliver Foster, and Dr. G. L. Tinker. A copy of this issue will be cheerfully sent free to all who apply. Price of the "REVIEW" 50 cts. a year.

The Production of Comb Honey.

Although this neat little book contains only 45 pages, it furnishes as much practical, valuable information as is often found in a book of twice its size. It is "boiled down."

It begins with taking the bees from the cellar and goes over the ground briefly, clearly and concisely, until the honey is off the hives; touching upon the most important points; and especially does it teach when, where and how foundation can be used to the best advantage; when combs are preferable, and when it is more profitable to allow the bees to build their own combs. Price of the book, 25 cts.

SPECIAL OFFERS.

For 65 cts. we will send the Review one year and "The Production of Comb Honey." For \$1.00 we will send all the numbers of the REVIEW for the past year (1888), the REVIEW for this year (1889) and the "Production of Comb Honey;" or, for the same amount (\$1.00), we will send the REVIEW for two years from Jan. 1st, 1889, and "The Production of Comb Honey." Stamps taken, either U. S. or Canadian. Address 1tfdb

W. Z. HUTCHINSON, Flint, Mich.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth \$200. I will give somebody a rare bargain. Speak quick. 15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange one section machine (of A. I. Root's make), which has been in use but little, for bees, honey, or bee supplies. 24tfdb E. Y. PERKINS, Jefferson, Greene Co., Iowa.

WANTED.—One trio Brown Leghorn Rose-comb chickens, and one trio White Leghorn Rose-comb chickens. PETER METZ, Poplar Grove, Ark.

WANTED.—To exchange apian supplies for printing to the amount of about \$25.00. 1tfdb Wm. H. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—Japanese buckwheat. Send sample, price, and state quantity to sell. 1-d S. M. ISBELL & Co., Jackson, Mich.

WYANDOTTES.

I will sell choice pure-bred cockerels now at \$2.00 each. W. K. LEWIS, Dry Ridge, Ky. 24tfdb

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading beekeepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

☞ In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO., 3tfdb ROCK FALLS, ILLINOIS.

☞ In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

ON 30 DAYS' TRIAL.



THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.

☞ In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

☞ PROFUSELY ☞ ILLUSTRATED.☞

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, O.

NEARLY THIRTY TONS

—OF—

DADANT'S FOUNDATION

SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hiltou, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for free samples, and price list of bee supplies. We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

CHAS. DADANT & SON,

3btfdb Hamilton, Hancock Co., Illinois.

☞ In responding to this advertisement mention GLEANINGS.

Western BEE-KEEPERS' Supply Factory.



We manufacture Bee-Keepers' supplies of all kinds, best quality at lowest prices. Hives, Sections, Foundation, Extractors, Smokers, Crates, Veils, Feeders, Clover Seeds, Buckwheat, etc. Imported Italian Queens, Queens and Bees. Sample Copy of our Bee Journal, "The Western Bee-Keeper," and latest Catalogue mailed Free to Bee-Keepers. Address: JOSEPH NYSEWANDER, DES MOINES, IOWA

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Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says:—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will."

Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT. 23tfdb

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.

fd JNO. VANDERVORT, Laceyville, Pa.

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Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

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GLEANINGS IN BEE CULTURE.

DISCOUNTS

Will be allowed as usual during the Fall and Winter Months.

PRICES QUOTED ON APPLICATION.

SUPERIOR WORKMANSHIP AND MATERIAL.

SHALL BE PLEASED TO MAKE ESTIMATES ON ANY LIST OF GOODS WANTED. CORRESPONDENCE SOLICITED.

A full line of BEE-KEEPERS' SUPPLIES manufactured by

W. T. FALCONER, - - - Jamestown, N. Y.

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FOUNDATION.

We manufacture the best foundation, and after it is drawn out by the bees it is perfectly white. Made from selected wax. All orders filled promptly (in the season) or money returned by next mail.

Address for prices, etc.,
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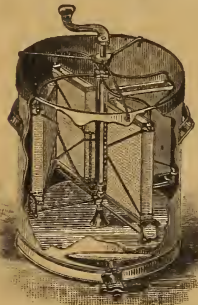
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NEW YORK.

FOREIGN ORDERS SOLICITED.

NEW JERSEY.



EASTERN * DEPOT

(Bees.) —FOR— (Queens.)

EVERYTHING USED BY BEE-KEEPERS.

EXCLUSIVE MANUFACTURER OF THE

STANLEY AUTOMATIC HONEY-EXTRACTOR.

Dadant's Foundation, Wholesale and Retail.

WHITE POPLAR OR BASSWOOD SECTIONS.

One-Piece, Dovetail, or to nail. Any Quantity, any Size.



MASS.

COMPLETE MACHINERY—FINEST WORK.

Send for Handsome Illustrated Catalogue, Free.

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.

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BEE SUPPLIES.

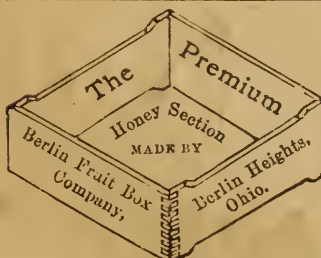
Wholesale and Retail.

Illustrated catalogue FREE to all. Address 3-11d

We have the largest steam-power shops in the West, exclusively used to make EVERYTHING needed in the Apiary, of practical construction and at the LOWEST PRICES. Italian bees, queens, 12 styles of Hives; Sections, Honey-Extractors, Bee-Smokers, Feeders, Comb Foundation, and everything used by bee-keepers, always on hand.

E. KETCHMER, COBURG, MONTGOMERY CO., IOWA.

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The value of a one-piece section depends on its folding without breaking. Our process of manufacture secures that end. Our catalogue explains how it is done. Our No. 1 sections

are perfect in all respects, and No. 2 are not imperfect enough to impair their utility. We also make the nicest of **WOOD SEPARATORS**—keep **DADANT'S FOUNDATION**, and furnish three kinds of **BERRY PACKAGES**.

Address, as in cut, for catalogue and special prices.
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WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4½x4½ sections, in lots of 500, at \$3.50 per 1000.

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